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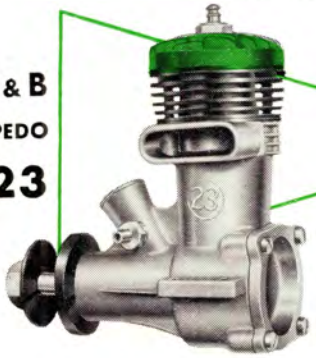

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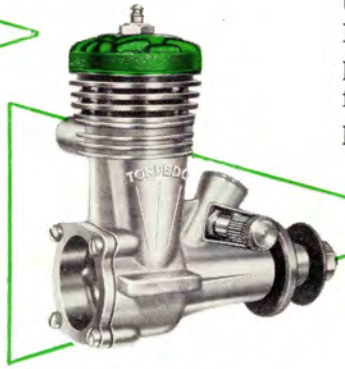
DISPLACEMENT .225 Cu. In.

K&B TORPEDO .15



BORE .595 STROKE .535
DISPLACEMENT .149 Cu. In.

K&B TORPEDO .09

BORE .520 STROKE .464
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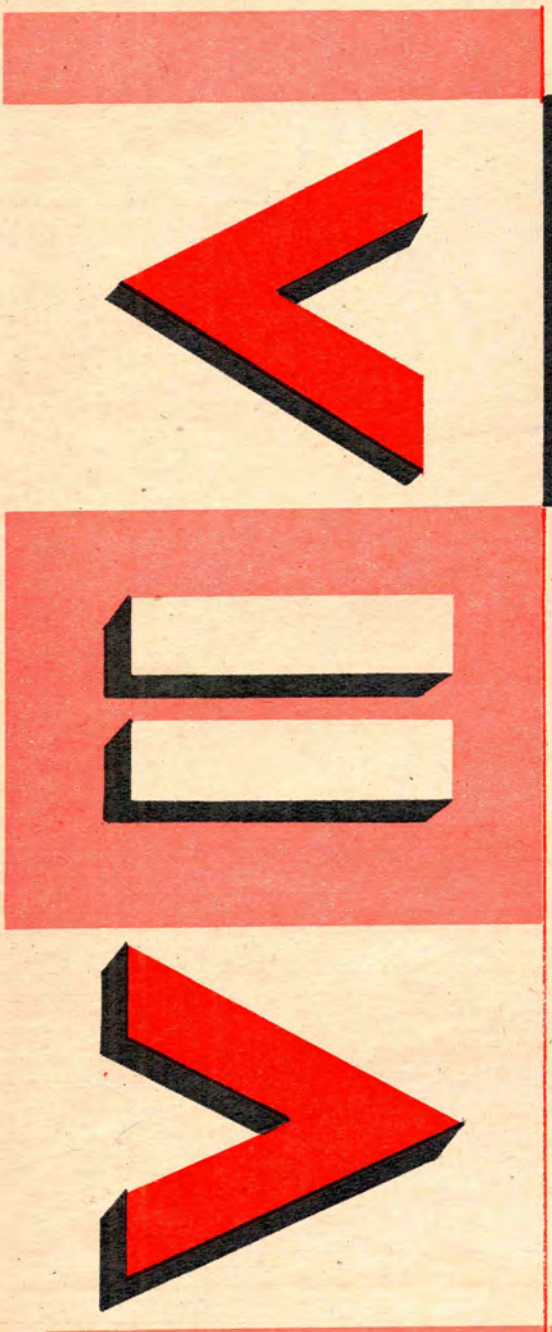

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Cover: Convair XF2Y Sea Dart. First delta wing seaplane fighter in the world. Equipped with retractable hydroskis and 2 powerful jet engines. A number will be built for the U.S. Navy.

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FROM THE READER

G.E. Clarifies Gunsight Item . . . This is to clarify a misconception established by your article "No Time To Kill!" appearing on page 29 of Air Trails magazine of January 1953. This article covers the A-1 gunsight and the AN/APG-30 radar equipment that together form the fighting equipment used in several of our fighter aircraft in Korea. I wish to clarify, however, the function of the radar equipment in this sighting system and also its development and manufacture. The radar is employed to deliver range information only to the gunsight which then solves the ballistics problem and gives the pilot his aiming points. The radar does not supply search information to detect "unseen" enemies nor was it developed or manufactured by the Sperry Gyroscope Company.

The fire control system referenced in your article is a true result of service coordination. The Air Force supported the gunsighting equipment, i.e., that portion developed by Dr. Charles S. Draper and produced by the Sperry Gyroscope Company. The Bureau of Aeronautics of the Navy Department supported the development and production of the radar which was performed by the Electronics Division of the General Electric Company. Both Services tested these equipments and exchanged data so that the optimum results and maximum standardization could be achieved. The General Electric Company is very proud of its contribution in the design and production of this radar set in that it has established itself well in operation as being rugged, reliable and accurate.

W. F. Hafstrom, General Electric Company Electronics Park, Syracuse, N. Y.

Eligible for "Caterpillars" . . . I would like to get information on the "Caterpillar Club," I became entitled to membership on 1 March, 1952 by bailing out of a crippled C-45 over Goshen, N. Y. By sending me the present address of the club or of a company which will give me the membership card and "Caterpillar" pin, you will add another name to your list of satisfied readers.

A/2c Francis X. Callahan, Korea

• The address of the Caterpillar Club is P.O. Box 1328, Trenton, New Jersey.

We are taking the liberty of sending your letter to the Club, which, undoubtedly, will expedite matters. In the meantime, we suggest that you write to them anyhow, giving them the background history of your jump, as well as type of chute used.

Meaning of Aspect Ratio . . . I would like to know the meaning of "aspect ratio."

Jerry Vogt, Seward, Neb.

• Aspect ratio is the ratio of a plane's wing span (length of wing) to its chord (width). Thus, if the wing is 35 ft. long and 5 ft. wide the aspect ratio will be 35 divided by 5, which equals 7. Seven is then the aspect ratio of this plane's wing.

Similarity in Sketchbook Ideas . . . About two months ago I sent you a new design about a double throw bellcrank. I sent it by registered letter and got word by mail you got it. In my December '52 issue I saw a bellcrank in the Sketchbook just like the one I sent in, except it was modified. I sent the real one in. Do I get any credit?

Michael E. Theriot, Baton Rouge, La.

• It is not unusual for similar Sketchbook ideas to be suggested over a period of time by different individuals. It is the accepted practice, and one which we follow, to accept and give credit to the first which comes to our attention. Mr. Schneider's communication for Sketchbook reached us in August and was drawn up at that time. At no time was your sketch linked with Mr. Schneider's. The sketch which appeared on page 71 of our December issue is a faithful copy of what Mr. Schneider drew in Germany.

Starting Time . . . I just got finished reading your latest edition of Air Trails. It is a very wonderful book for young boys like myself. I am thirteen and hope to grow up to be a pilot.

John La Valla, Tacoma, Wash.

His Engine Failed . . . I would appreciate your opinion as to the most likely cause of a recent engine failure. The aircraft was lost at sea.

I had been cruising on a steady course in an Ercoupe at an altitude of 1500 feet, airspeed 85 mph, for half an hour. It was a clear day, the air temperature was about 75 deg. Fahrenheit. Suddenly the engine began sputtering and missing. After about 30 seconds of this, it stopped entirely. There was sufficient fuel, no cut-off valves were shut, and switching magnetoes had no effect. Do you think there was any possibility of carburetor icing?

R. H. Pierce, San Francisco, Calif.

• It appears, from your description, that the engine failure was quite possibly due to carburetor ice, though the air temperature was high. Due to gasoline evaporation the temperature in the carburetor venturi drops to freezing and if moisture content of the air is just right ice is apt to form. Best procedure whenever the engine sputters for an unknown reason is to put on full carburetor heat immediately.

Suggestion from "Brasil" . . . I have a suggestion for the diesel owners in U. S. A. I think that the fuel they use contains castor oil and paraffin oil. We here in South

(*Continued on page 12*)

All communications to the editors should be addressed to 304 East 45th St., New York 17, N. Y. **Subscription prices:** U. S. and Possessions—$3.50 per year, $6.00 for two years; Canada—$4.00 per year, $7.00 for two years; countries of the Pan American Union—$7.00 per year, $10.00 for two years; elsewhere—$10.00 per year, $14.00 for two years. **Please advise us if you move,** giving old address and new address; allow four weeks for change of address; address all subscription mail to **Air Trails Subscription Department,** 304 East 45th St., New York 17, N. Y.

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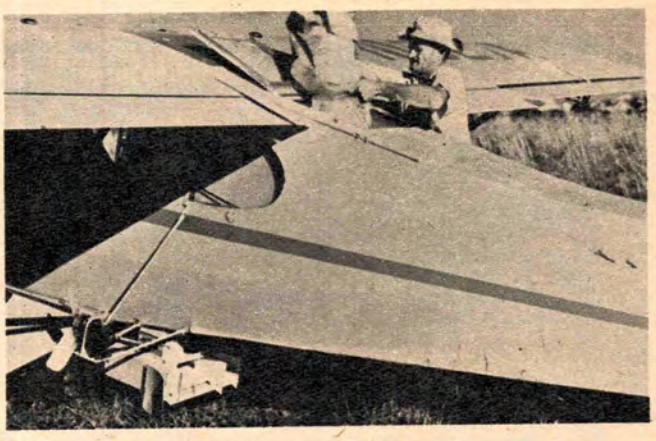

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Air Notes

Ryan Q-2 Pilotless Jet Plane Recovered by Parachute

ON YOUR RIGHT: the Ryan Q-2 pilotless jet target drone being lowered by parachute. The drone, half the size of a jet fighter and capable of speed around 600 mph, is packed full of delicate electronic devices, easily put out of commission on hard impact. To prevent this a special two-stage recovery system was designed consisting of two chutes; a drag chute stabilizes and decelerates the Q-2 first, after which it pulls the main parachute out of a container. The drag chute is released then and the main chute brings the Q-2 down ever so gently.

★ ★ ★

CONVAIR R3Y turbo-prop transport seaplane has been officially named Tradewind. Another Convair airplane, the air-evacuation transport C-131A based on the 240 airliner, has been christened Samaritan. . . . BLUE ANGELS, Navy's famous jet aerobatic team, well-known for its precision acrobatic exhibitions at such events as National Air Races, National Model Airplane Contest and other important aviation functions, have a new skipper: Lt. Cdr. Arthur Ray Hawkins, one of the most decorated airmen in the Navy. During World War II, "Hawk" shot down 14 enemy aircraft before reaching the age of 21!

★ ★ ★

MARTIN P5M-1 Marlin anti-submarine flying boat flew continuously for 639 hours, landing only briefly to be refueled and serviced as part of evaluation program. . . . JET TRANSPORTS, capable of spanning the country in four hours, are on drawing boards of a number of U. S. aircraft manufacturers, says General Jimmy Doolittle. . . . FINLAND acquired its first jet fighters when three de Havilland Vampires were delivered to the Finnish Air Force; up to now the country has been using German Messerschmitt Me-109 fighters. . . . 375 corporation-owned and executive airplanes landed on Washington (D. C.) National Airport during Presidential inauguration. . . . A KAMAN K-225 helicopter has been delivered to the Turkish Air Force.

★ ★ ★

CANADIAN CF-100 jet fighters are equipped with U. S. made automatic control system built by Minneapolis-Honeywell Regulator Co. . . . TRANSCONTINENTAL Handicap Air Cruise, sponsored by Philadelphia Jr. Chamber of Commerce takes off April 25 from Philadelphia, finish line is Desert Air Airport, Palm Springs, Calif. Cruise is for strictly stock aircraft of not more than 300 hp. Purpose: to prove safety and usefulness of modern aircraft. . . . Beechcraft to push production of USAF T-36A navigation trainer. Plane, powered by two Pratt & Whitney engines of 2000 hp each, will have service ceiling of 34,000 feet and top speed of over 300 mph.

★ ★ ★

DETROIT AIRCRAFT SHOW, sponsored by the Aero Club of Michigan, for July 9 to 12. No air racing or aerobatics to be featured this year. Main attractions will be static exhibits of military, civilian aircraft and accessories, and flight demonstrations emphasizing utility and safety of aircraft, departure and arrival of significant civil and military long distance flights. . . . MATS (Military Air Transport Service), has transported, since its inception in 1948, 1,400,000 military passengers, 219,000 medical patients and nearly 300,000 tons of high-priority military cargo and mail—an achievement! . . . PROPELLERS incorporating widest blades ever built in production made at Hamilton Standard. To be used on 5500 hp T-34 P&W turbo-prop engines scheduled for installation in Navy's Lockheed R7V-2 Super Connies.

★ ★ ★

COMMERCIAL airlines in United States may soon adapt a rotating beacon mounted on vertical fin of transports to minimize chance of collision. Beacon consists of 4½" diameter seal beam lamp developed especially by General Electric and capable of producing a light beam of 50,000 candlepower. A deep red colored dome lens is fitted over the lamp. . . . FAIRCHILD Engine and Airplane Co. producing 1000-lb.-thrust turbo-jet engines for guided missiles. Designated J-44 and weighing only 300 lbs., they are 72 inches long, 22 inches in diameter. Used in the Ryan Firebee target drones.

★ ★ ★

BRITISH EUROPEAN AIRWAYS have entered a turbo-prop Vickers Viscount in the International Air Races from England to New Zealand for October. . . . ALL AMERICAN AIRWAYS has changed its name to that of Alleghany Airlines. . . . CONVAIR'S San Diego Division has delivered the last of more than 130 B-36 bombers which were modernized from B-36B powered by six piston engines to the latest version which has combination of six piston and four jet powerplants. . . . CANADIAN AIRCRAFT CO. negotiating with Bristol Aeroplane Co. for license to produce the 100-passenger, turbo-prop airliner Bristol Britannia in Canada. Parent outfit to build 25 for B.O.A.C.

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R/C NEWS

Simultaneous Operation on BOTH Citizens Bands

By Vern C. MacNabb

The question is frequently asked, "Will CITIZEN-SHIP 465 and 27.255 interfere with each other?"

Neither radio frequency can interfere with the other. The high frequency cannot possibly be received on the lower 27.255, and the nearest harmonic of 27.255 to 465 is the 17th, which is negligible in a properly designed transmitter such as the CITIZEN-SHIP 27 Type LC.

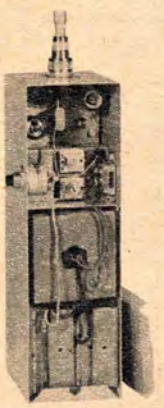
Sometimes the quench frequencies of two receivers will be the same and the quench signal of one will be picked up by the other when RECEIVERS are side by side. This is the only way interference can be obtained between these two bands.

If this should occur a slight readjustment of the quench coil tuning will eliminate this interaction.

Therefore we have the opportunity of multiple control with CITIZEN-SHIP 465 and 27.255, one frequency for rudder, the other on elevators, plus other combinations to give motor speed, brakes on wheels, etc., depending on the ingenuity of the modeler.

The only producer of equipment for BOTH CITIZENS BANDS
465 mc and 27.255 kc

NEW . . . CITIZEN-SHIP "27" LR, RECEIVER, is a hard tube (3V4) receiver giving a 5 to 1 plate current change assuring dependable operation with a Sigma 4F adjustable relay. Has indestructible fiber glass base 2½ x 1¾"; height of unit 2¼" and weighs only 4 ounces; price $24.95



NEW . . . CITIZEN-SHIP "27" LC hand held transmitter (shown at left) for use on new "examination free" 27.255 kc frequency is completely self contained. Using a 3-section plug in antenna 48 inches long and two 3V4 tubes it gives extra high radio output. Factory tuned and adjusted for optimum performance. Weighs just 4 lbs. complete with batteries; dimensions 3" x 4" x 9". With tubes and crystal, price less battery..... $39.75

RECEIVER model CR for 465 mc Citizens band; ready to "fly out of box"..... $29.95

TRANSMITTER model CC for 465 mc band; price less batteries..... $39.75

Citizen-Ship SN escapement	$ 9.95
Good Bros. 4 position escapement	13.50
Citizen-Ship Test Meter	19.95
Bell Crank and Rudder Horn	.75

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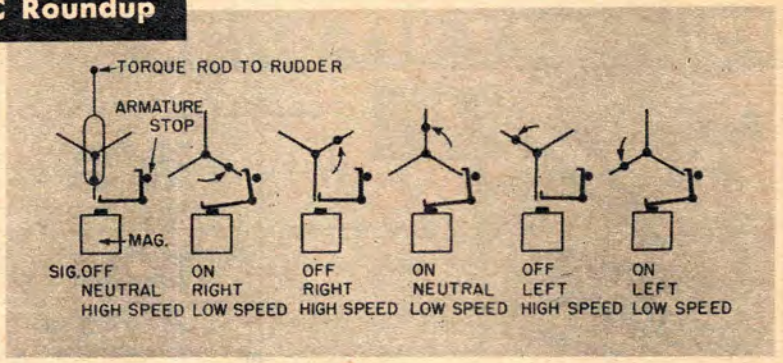
R/C Roundup



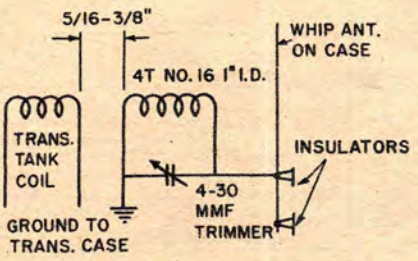
Westlake Dishes Up New Dual Control System

■ This seems certain to be a "dual-control year," so here is another system that may be used to work your motor, elevator or other added control. We show the deal above; it is based upon the use of a three-arm escapement, a type seldom seen, but which fits into this layout very well. The three-arm unit has, essentially, only a single neutral (there is actually one neutral with signal *on* and one with sig. *off*).

There are two right rudder positions and two left; you can get the same degree of rudder movement on either side, with current on and with it off. Ray Westlake (Minneapolis) has made use of this by hooking a motor escapement in parallel with the coil of the rudder esc. The motor unit is simply a magnet and armature, the latter fitted with a valve to close an air bleed to the second needle valve on the motor, when current is on (with a signal coming in). The sequence of operation is shown. Note that all transmitter-on signals give low speed, when held. For the same rudder positions, but with high speed—just pulse through fast. Extended turns at high speed will not run down the escapement batteries. This arrangement has been used in an R/C Master with Super-Aerotrol. The trick escapements were homemade.

Members of Norwood Soc. of Model Engineers have found the coupling system (small diagram) gives considerably better power into the antenna, when applied to Aerotrol and similar transmitters. It is essential to use a plate milliameter on the transmitter, when setting this up, since the added condenser must be "tuned" to get the point of best loading. Once this has been found, it will not need alteration. With plate condenser tuned to resonance (it's best to tune up with only 67½ V.), adjust added trimmer till plate current rises, then vary coupling to set current at desired maximum.

It will be found that there is some interaction between plate condenser and trimmer; shift them alternately to get the best setting for both. It has been found possible to light a #51 neon bulb from the antenna, using this arrangement.



The Mailbag. A new R/C club has been formed in Baltimore with the name of "Radio Modeller's Association." Applications for AMA affiliation had names of 22 charter members, and new members are being sought. This is a logical move, since there has long been much R/C interest in Baltimore area. Write to Leonard Chioma, 6127 Alta Ave., for more details.

The AAA meet of the Model Airplane Doctors, Easton, Pa., on May 31 will have an R/C event, according to word from Joe Gorman Jr., who is a C.D. This Annual Meet is for all types of outdoor planes, except H/L gliders. You can reach Joe at R.F.D▸2.

A letter from Bill Butler of Los Angeles brings the info that he is turning to reeds (as are apparently about 80% of all the other Coast R/Cers!). Bill likes plenty of action from his R/C ships, as all who have seen him fly his little "Tumblebug" will know.

Frank Doty, Chardon, Ohio, believes that R/C brings out the inherent Gadgeteer in everyone who tries it; says he is no exception. He has schemed up a simple motor-driven Beep Box for use with his Compound escapement. He feels there should be a good little business for someone in the work of installing twin needle valves on various engines —since no manufacturer (except K&B) is apparently willing to do it for us.

Frank asks for some comments on the problems of designing a landing gear that will prevent nose-overs and will also eliminate ground loops. Sad to say, these are diametrically opposed requirements. An L.G. that is well forward will keep the ship from turning over to a great extent; it will also practically guarantee a horrible ground loop on every attempt at R.O.G. A trike gear allows fine straight take-offs, but that nose wheel takes an awful beating and has a tendency to "trip up" the plane if it lands in tall grass. If a regular two wheel gear is located just under the leading edge of the wing, the ground loops are minimized—but your prop bill goes up.

One answer seems to be the setup used in the Live Wire. Here the engine is mounted high, so that a very squatty landing gear may be fitted, and still retain sufficient ground clearance for the prop. The fuselage—and main weight of the plane—is so close to the ground that noseovers are not too frequent, yet the wheels are back under the leading

(*Continued on page* 50)

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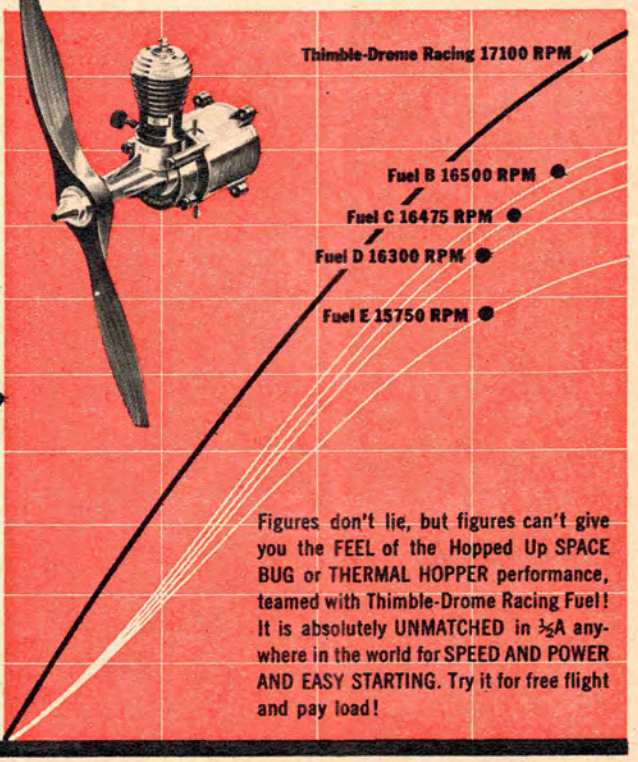

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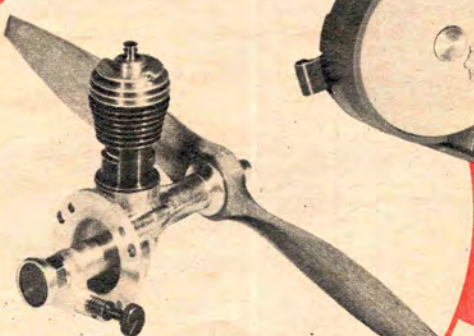

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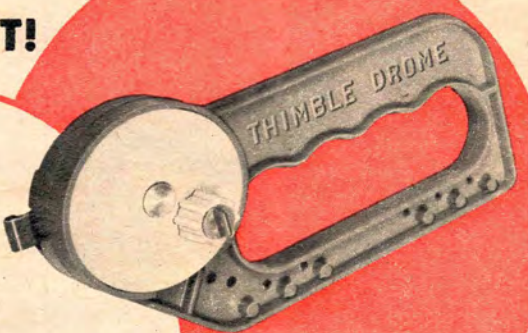

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(Continued from page 4)

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João Carlos Krahe, Candido Silverira 118, Porto Alegre R.G.S., Brasil

"Sound Barrier" Movie . . . After seeing the picture "Breaking Through the Sound Barrier," I was puzzled about one part. When the pilot dove his plane to go through the barrier and as he picked up speed he could not pull the control stick back, so he pushed the stick forward and the plane went up. That's the part I don't understand. Why the steering is reversed?

Bert Schulman, New York, N. Y.

• The incident quoted by you has been subject of comments and speculation.

First, let us dispel one common belief among laymen. The airflow over the wings and surfaces of an airplane traveling at near sonic or supersonic speed does not reverse itself. It does, however, become very turbulent, if the design of the airplane is such that the speed of the air flowing over the wings, tail and other parts reaches sonic velocity before the airplane itself does. This is due to the contour or shape of these parts which accelerate the airflow over them. As the air gets close to the speed of sound, wing shock waves are formed at the leading edge and trailing edge of the wing, but the speed of the air itself over the wing varies; it is first subsonic, then part supersonic and part subsonic, and finally all supersonic.

In the meantime, what happens to the tail surfaces? They ride in the wake of the very turbulent air and trailing edge shock wave of the wing which causes large changes in air loads and results in violent pitching motion and loss of control, as experienced with some World War II fighters which were not designed for these extreme speeds. Some airplanes have a tendency to "tuck under," others to "nose up," in these circumstances. Because of the severe tail loads, the stick loads are extremely high also, and the effect of the turbulent air on the elevator may be such that movement of the stick requires a force greater than available to a human.

However, despite the fact that loss of control and severe pitching is experienced because of turbulence while approaching sonic speed, recovery is accomplished normally by pulling back on the stick. There was one incident, during World War II, when a P-47 Thunderbolt tucked under during a very high speed dive and the pilot brought it out by shoving the stick forward, accomplishing half of an inverted loop to regain normal flight attitude. According to our information, the Supermarine Swift, featured in the film, recovers normally with stick back. So it seems that the incident you saw was one of those typical motion picture scenes which add drama to the feature. We do not discount, though, the possibility that under certain conditions control reversal may be experienced due to the very confused airflow pattern between the wing and the tail surfaces of an airplane in very high speed flight, but we do not think that it is probable.

In present-day high-speed fighters, definite steps have been taken to reduce as much as possible this turbulence, and loss of control. The very thin wing and especially the swept wing greatly reduce the speed of airflow over the wing so that in the airplane flying at 760 mph, the speed of air over the wing and tail is well below that. By mounting the horizontal tail high, it escapes the turbulent wake of the wing, and, therefore, retains control at all times. Another method of retaining control on tail surfaces is an adjustable stabilizer geared to the elevators as in the F-86E Sabre.

Flying Saucers . . . Anybody back there got any dope on those flying discs that I saw in the control line circles at the last National meet? Sure would like to build one.

Sam Calhoun, Las Vegas, Nev.

• You mean these pixilated pie plates? See "Sassy Saucer" in this issue, Sam.

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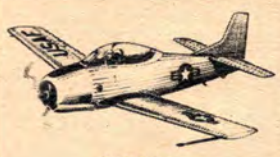

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Easy to build? These new Guillow all balsa models are the last word in simplicity. The accurate die-cut parts fit together in a jiffy—you can start a model in the evening and fly it the next day—it's as easy as that!

Look for them in your favorite hobby shop

25DC-14
Douglas AD-1 Skyraider

25DC-15
No. Am. P-51 Mustang

OTHER MODELS AVAILABLE

AERONCA CHAMPION — CESSNA
WAKEFIELD JR. — MONOCOUPE
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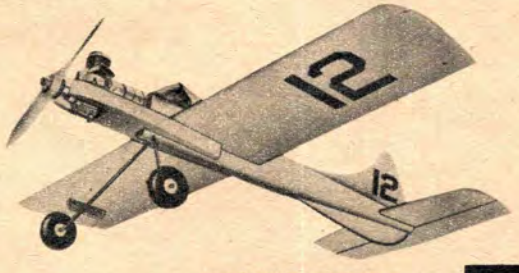
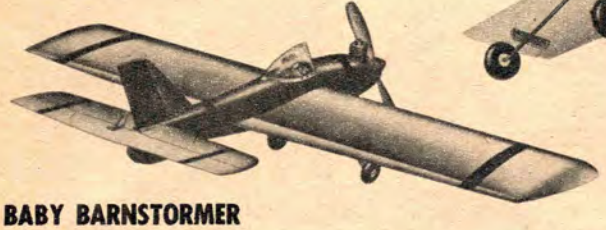
Trixter -

TOPS IN STUNT MODELS

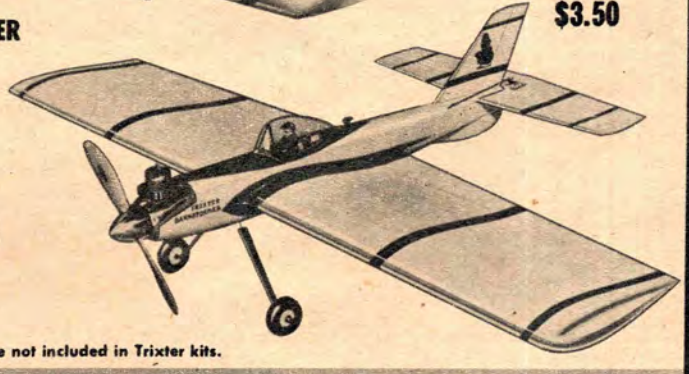
Designed by Lou Andrews, champion stunt flyer





PROFILE TRAINER
Wing span.....32 in.
Engine.....19 to .29 disp.
$3.50

BABY BARNSTORMER
½ A stunt model
Wing Span.....23½ in.
Engine....035 to .049 disp.
$2.95



National Champion
BARNSTORMER
Wing Span ..... 47 in.
Engine ..... .23 to .35 disp.
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Note: Engines and hardware not included in Trixter kits.

25¢ DIE-CUT BALSA SHELF MODEL KITS

No. Am. P-51 Mustang	Lockheed F-80 Shooting Star
Vought F4U-1 Corsair	McDonnell F2H-1 Banshee
Republic P-47 Thunderbolt	Republic F-84 Thunderjet
Curtiss P-40 Warhawk	No. Am. F-86 Sabre
Lockheed P-38 Lightning	Russian Mig 15
Lockheed C-69 Constellation	Vought F7U Cutlass
Boeing B-29 Superfortress	No. Am. B-45 Tornado
Sikorsky H-5 Transport	Boeing B-47 Stratojet
No. Am. T-28 Trainer	Northrop F-89 Scorpion
Convair B-36 Bomber	Grumman F9F Panther
Fairchild C-119 Packet	Martin B-57A Canberra
	Douglas AD-1 Skyraider

SPECIAL Value IN EACH KIT!

PLASTIC CANOPY OR PROP DISKS

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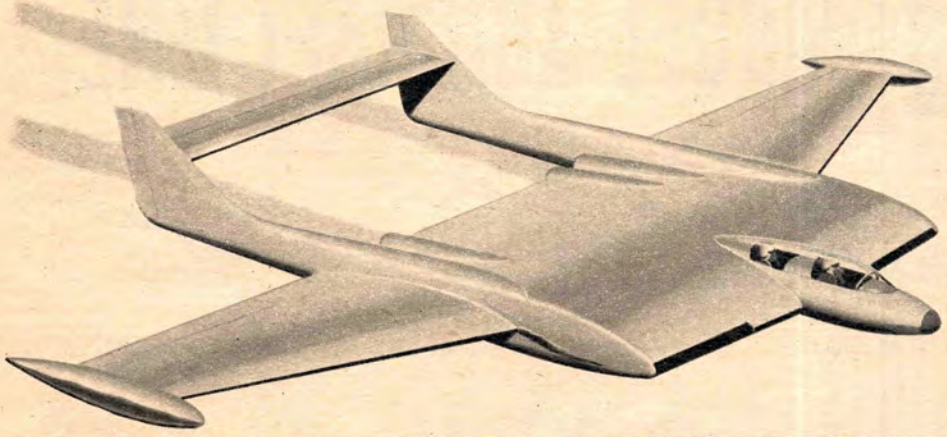
EASY ASSEMBLY — THE DIE-CUT PARTS GO TOGETHER LIKE MAGIC!

50¢ DIE-CUT BALSA SHELF MODEL KITS

BOEING B-47 STRATOJET — CONVAIR B-36 BOMBER — MCDONNELL F2H-1 BANSHEE

See your local dealer or write **PAUL K. GUILLOW, WAKEFIELD, MASS.** Add 15c to all mail orders.

AIRMEN OF VISION DESIGN COMPETITION

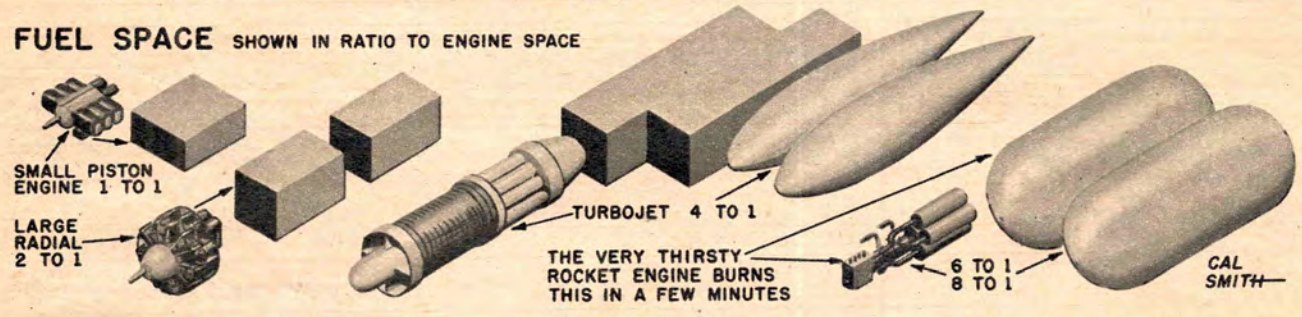


1ST Prize-Winning Design

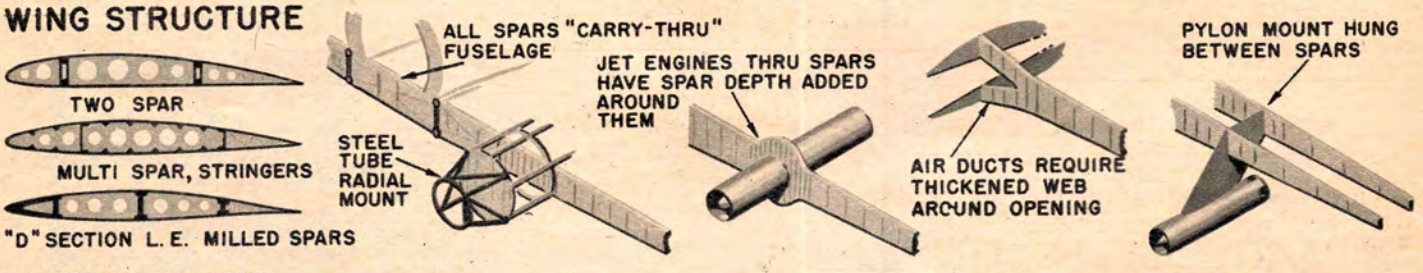
Best design this month is torpedo bomber by Air Force Staff Sergeant Robert Wolcott, currently overseas, based on Burnelli lifting fuselage design. Some redesign was made by AT technical staff, relocating crew to center pod for better visibility and intercommunication from prior position in left and right side of fuselage. All military load is stowed in fuselage and released from large bomb bay. Recoilless 75-mm and two 20-mm cannon.

REMEMBER—fuel space is at a premium. When laying out wing design, try to visualize the basic structure inside. Landing gear types are pretty standardized with forged oleo struts used in most retractable gear. Allow room for extended position. Shown also are fixed gear for smaller craft. Small plane floats are the EDO design. Large flying boat hulls have large length-beam ratio and this design should be used on big subsonic boats. The hydro-ski, permitting thinner hull, will make fast, heavy types practical.

FUEL SPACE SHOWN IN RATIO TO ENGINE SPACE


SMALL PISTON ENGINE 1 TO 1
LARGE RADIAL 2 TO 1
TURBOJET 4 TO 1
THE VERY THIRSTY ROCKET ENGINE BURNS THIS IN A FEW MINUTES
6 TO 1
8 TO 1
CAL SMITH

WING STRUCTURE


TWO SPAR
MULTI SPAR, STRINGERS
"D" SECTION L. E. MILLED SPARS
ALL SPARS "CARRY-THRU" FUSELAGE
STEEL TUBE RADIAL MOUNT
JET ENGINES THRU SPARS HAVE SPAR DEPTH ADDED AROUND THEM
AIR DUCTS REQUIRE THICKENED WEB AROUND OPENING
PYLON MOUNT HUNG BETWEEN SPARS

LANDING GEAR

RETRACTABLE SINGLE TUBULAR STRUT
FIXED CESSNA FLAT PLATE
WITTMAN FIXED TUBING SPL. HEAT TREAT.
CONVENTIONAL GEAR WHEEL CONTACT 15 - 20° AHEAD OF C. G.
TRI-CYCLE MAIN WHEELS 15-20° BEHIND C. G.

FLOATS & HULLS

SMALL PLANE EDO FLOAT, ABOUT 2/3 AIRCRAFT LENGTH
STEP SLIGHTLY BEHIND C. G.
HIGH SPEED JET TYPES UTILIZE BLENDED HULL AND / OR RETRACTABLE HYDRO - SKIS
FRONT
RETRACTABLE SPRAY DAM
BIG FLYING BOATS, HULL LENGTH - BEAM RATIO 10 TO 1, WITH V - STEP

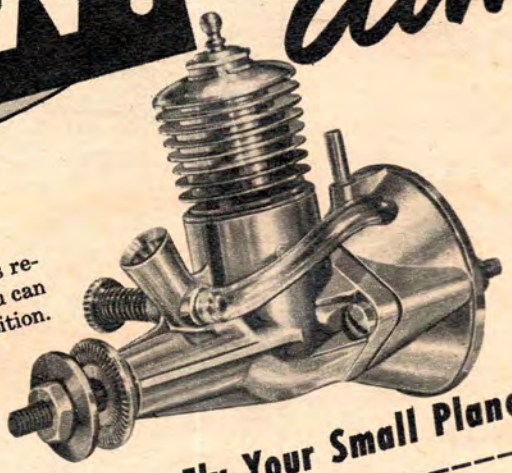
Rules governing the "aircraft of the future" competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½x11 inches for the entire three views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes fo the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payment of $5 will go to runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that due to large number of entries they cannot enter into any correspondence on Airmen of Vision.

1953's Model NEWS Sensations

① This NEW!

CLASS "A"

Atwood .051



Only $6.50

Complete with F/F and U-control equipment, propeller and wrench.

Because—

Under the newly changed A.M.A. Contest rules reducing flying time from 10 to only 6 minutes you can enter your "small plane" in class "A" competition.

So, answering many requests for a small Atwood-design Class "A" engine, we proudly present our new 1953 .051—an engine with the new "faucet" timing, larger crankcase and by-pass area. Bore .420—stroke 370— Develops up to 18,000 rpm's with standard 1/2A props.

Yes, Now Fly Your Small Plane in Class "A"!

② The Sensational New Principle! Atwood GLOW PLUG

Pat. Pend.

The Smoothest Running Glow Plug Ever Developed!

Yes, here's the most sensational development since the Glow Plug itself. A completely new approach to Glow plug performance . . . assuring you NO SKIP—NO MISS—NO BURBLE—with a rich or lean mixture. You'll have to fly it to believe it!

Long or Short

60¢

individually boxed

③ The New Atwood "HOP-UP-KIT" For WASP Engines

Just what the doctor ordered to give your Wasp .049 that extra get up and go!

Contains our newly developed LOWER CRANK CASE and LARGER CRANK SHAFT for greater volumetric efficiency.

$3.50 SET

And May We Add:

The success of any business depends on the brains within its organization. We are proud to announce that Mr. Perrin C. Culver is now head of our research department. It was through his efforts that many new innovations and improvements were possible in our new model engines. He also was responsible for the development of our new glow plug. Mr. Culver has long been associated with the model industry and is a recognized authority in many fields. His genius will assure you that Atwood Motors will always be looking ahead for newer and better ideas to improve our product.

We Will Continue

TO MAKE our new 1953 Atwood .049... a more powerful 1/2A engine that's really hot!

TO MAKE our Famous Atwood Triumph "49's" and "51's" Glow plug models.

TO IMPORT the Sensational Japanese-Made OS"29" We told you it was superior in its field...and all reports more than bear this out.

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Always Build
CLEVELAND
THE A·B·C OF MODELING

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F-89 SCORPION
F-84F THUNDERJET
VOUGHT CUTLASS
LOCKHEED F-90
McDONNELL BANSHEE
RUSSIAN MIG-15
THE PIPER CUB
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BEAUTIFUL EASY-TO-MAKE PRE-FAB SCALE MODELS
$1 EACH

Build "IT" Kits

EACH $1.50

P-39 AIRACOBRA
ALSO F-86 SABRE
F-51 MUSTANG
P-40 WARHAWK
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"Quicky" Kits

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CLEVELAND MODEL & SUPPLY CO.
Master Model Designers — Since 1919
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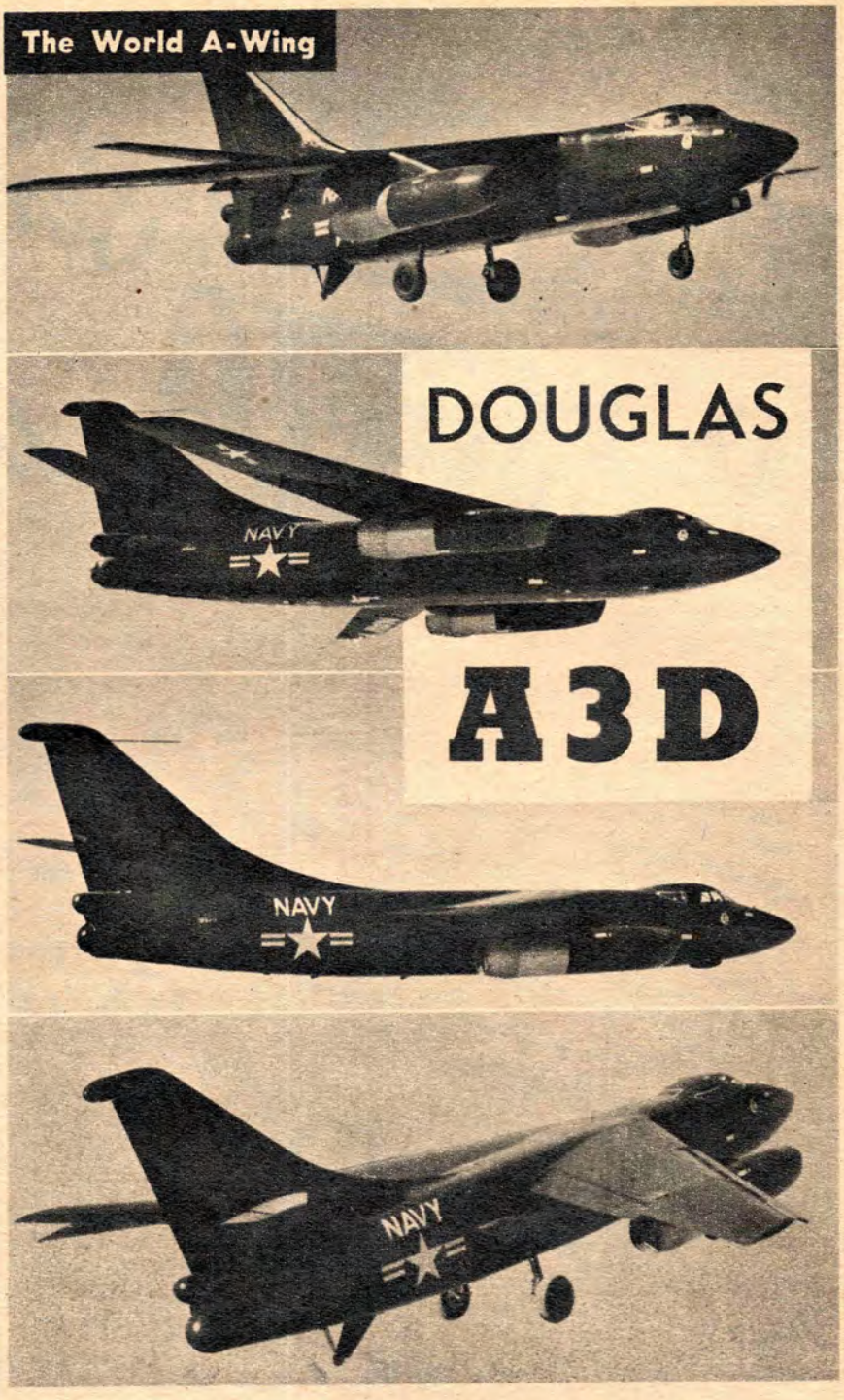
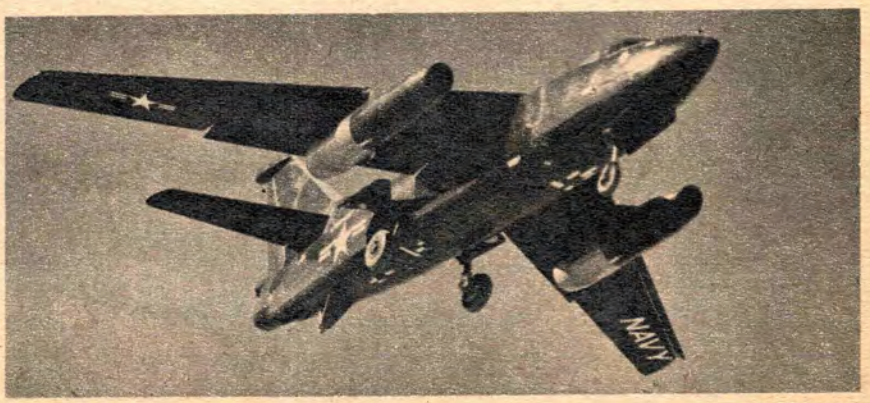


This potent latest Navy twin-jet attack bomber, the Douglas A3D, is designed to fly faster and farther, with a greater striking load than any other airplane of its size and weight. It can operate from carriers as well as land and is chuck full of radar and electronic equipment. Performance is in "well over 600 mph class." To be also delivered to the AF as RB-66 reconnaissance bomber.



WILL THIS SUIT FIT YOU?

If you can make the grade, you can fly the latest, hottest, fanciest jobs in the air— and do it within one year.

IT TAKES a good, tough, serious guy to wear the equipment of an Aviation Cadet. But if you can measure up, here's your chance to get the finest in aviation training—training that equips you to fly the most modern airplanes in the world and prepares you for responsible executive positions in industry both in military and commercial aviation. And you do your country a service.

It won't be easy! Training discipline for Aviation Cadets is rigid. You'll work hard, study hard, play hard—especially for the first few weeks. But when it's over, you'll be a pro—with a career ahead of you that will take you as far as you want to go. You graduate as a 2nd Lieutenant in the Air Force, with pay of $5,300.00 a year. And this is only the beginning—your opportunities for advancement are unlimited.

ARE YOU ELIGIBLE? To qualify as an Aviation Cadet, you must have completed *at least* two years of college. In addition, you must be between 19 and 26½ years, unmarried, and in good physical condition.

New Aviation Cadet Training Classes Begin Every Few Weeks!

HERE'S WHAT TO DO:

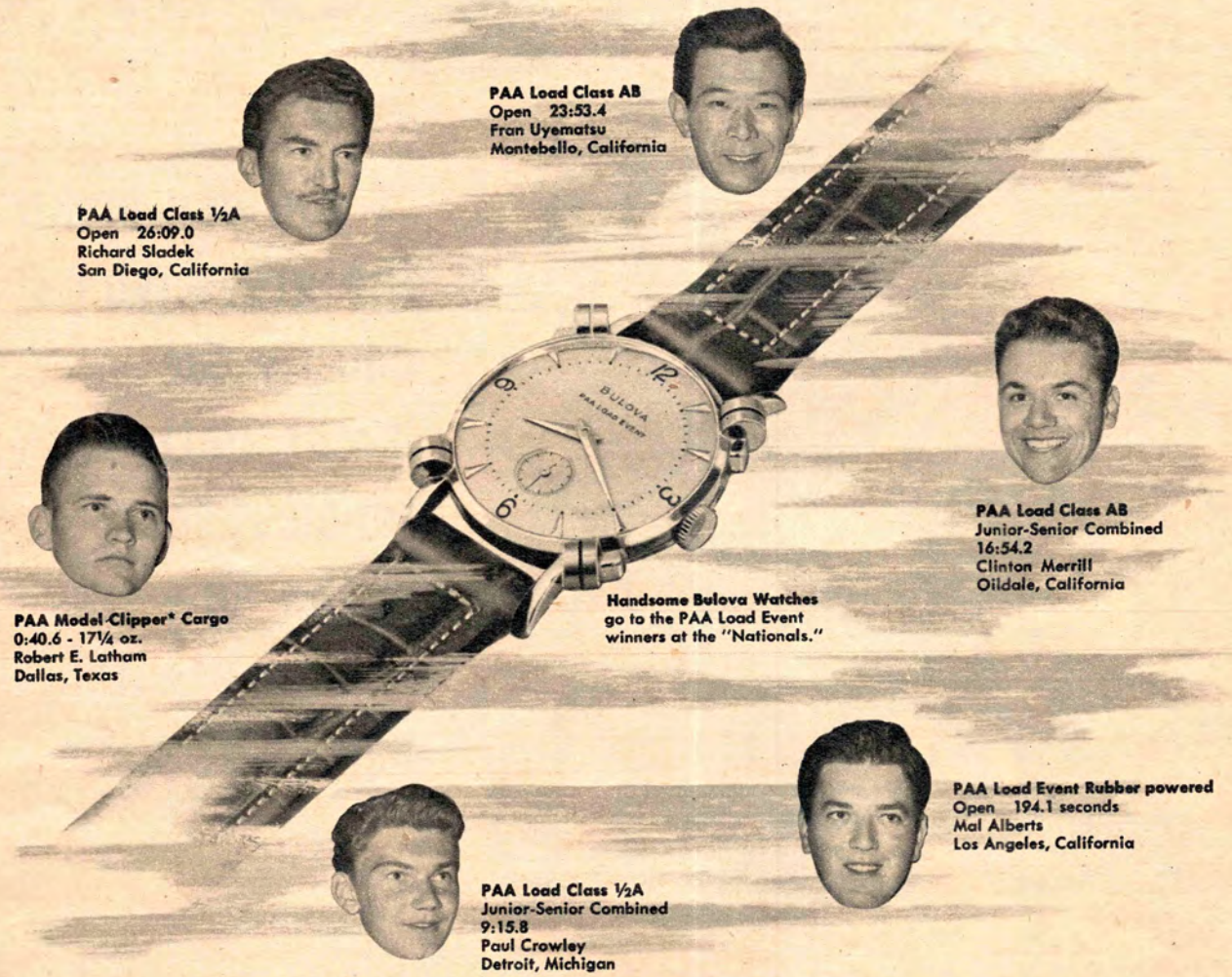
1. Take a transcript of your college credits and a copy of your birth certificate to your nearest Air Force Base or Recruiting Station. Fill out the application they give you.
2. If application is accepted, the Air Force will arrange for you to take a physical examination at government expense.
3. Next, you will be given a written and manual aptitude test.
4. If you pass your physical and other tests, you will be scheduled for an Aviation Cadet training class. The Selective Service Act allows you a four-month deferment while waiting class assignment.

Where to get more details: Visit your nearest Air Force Base or Air Force Recruiting Officer. Or write to: Aviation Cadet, Headquarters, U. S. Air Force, Washington 25, D. C.

U.S. AIR FORCE

Record Racker-Uppers

at the 1952 "Nationals"



PAA LOAD EVENTS

● These exciting contests provide model flying that brings out the basic purpose of aviation itself—*to carry a payload.*

First sponsored by Pan American in 1948, PAA Load Events are free flight headliners at many local and regional meets—and a highlight of the "Nationals." Why not start your PAA Loader today?

For rules and specifications for 1953, write to: Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City 1, New York. *Trade-Mark, Reg. U.S. Pat. Off.

1953 "NATIONALS"

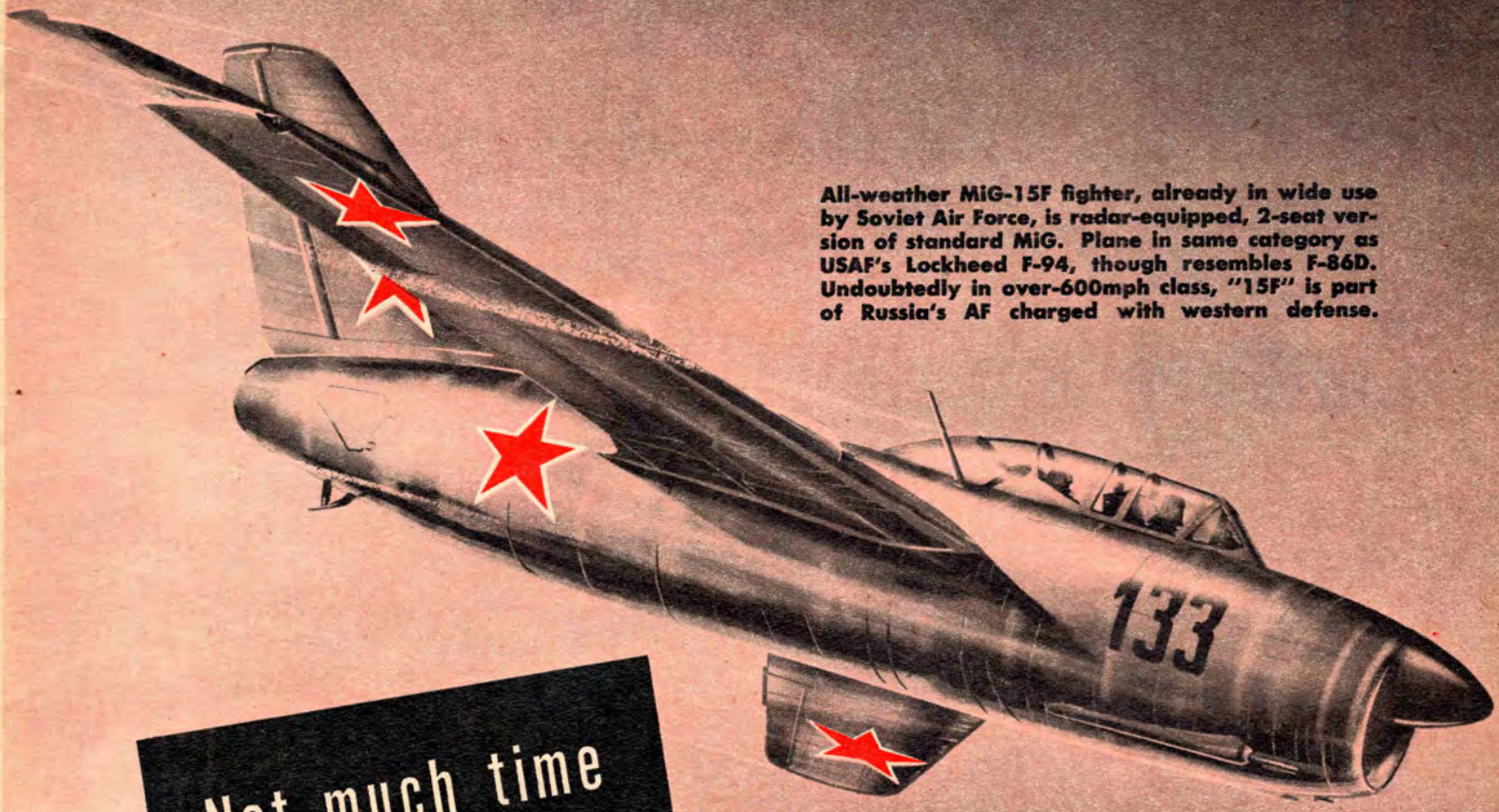
July 27-August 2
U. S. Naval Air Station, Willow Grove, Pa.
(Near Philadelphia)

PAA LOAD EVENT AWARDS at "NATIONALS"

1st—$100 and Bulova watch
2nd—$50 and Bulova watch
3rd, 4th, 5th—Bulova watches
1st to 5th, Rubber powered—Bulova watches

PAN AMERICAN

WORLD'S MOST EXPERIENCED AIRLINE

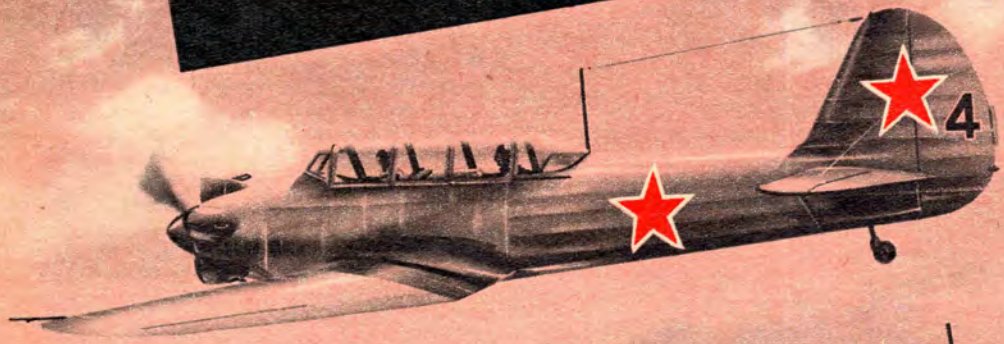


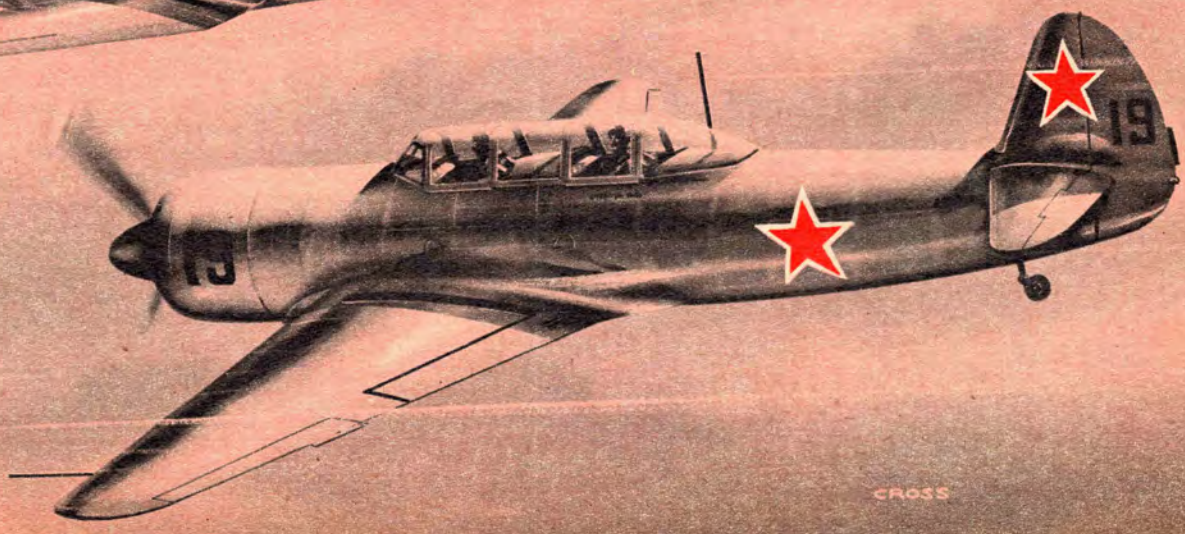
All-weather MiG-15F fighter, already in wide use by Soviet Air Force, is radar-equipped, 2-seat version of standard MiG. Plane in same category as USAF's Lockheed F-94, though resembles F-86D. Undoubtedly in over-600mph class, "15F" is part of Russia's AF charged with western defense.

Not much time

Quotes requiring no comment: "The U. S. Aircraft industry will turn out about 14,500 military airplanes this year but Russia's production will be even greater . . . it takes (us) from two to four years to get a new aircraft off the drawing board and onto the production line . . . air power is not a sometime thing."

MUNDY I. PEALE, President
Republic Aviation Corporation





Three Soviet trainers: top, U-Yak-15 for jet indoctrination; center, Yak-18 primary that unlike most of kind has retractable landing gear; bottom, Yak-11 for basic work, equivalent to our T-6 trainer, but faster.

CROSS

Red Army Controls Soviet Air Force

In Part II of "The Red Air Force is Ready" we see how the masters of the land direct the soldiers of the air

Text by
WILLIAM GREEN
Illustrations by
ROY CROSS

■ The largest component of the highly organized and versatile complex of air forces comprising the *Sovietski Voenno-Vozdushni Flot* (Soviet military air fleet) is that formed by the vast numbers of combat airplanes committed to the direct support of the Army, absorbing some 70 percent of the total air strength of the Soviet Union.

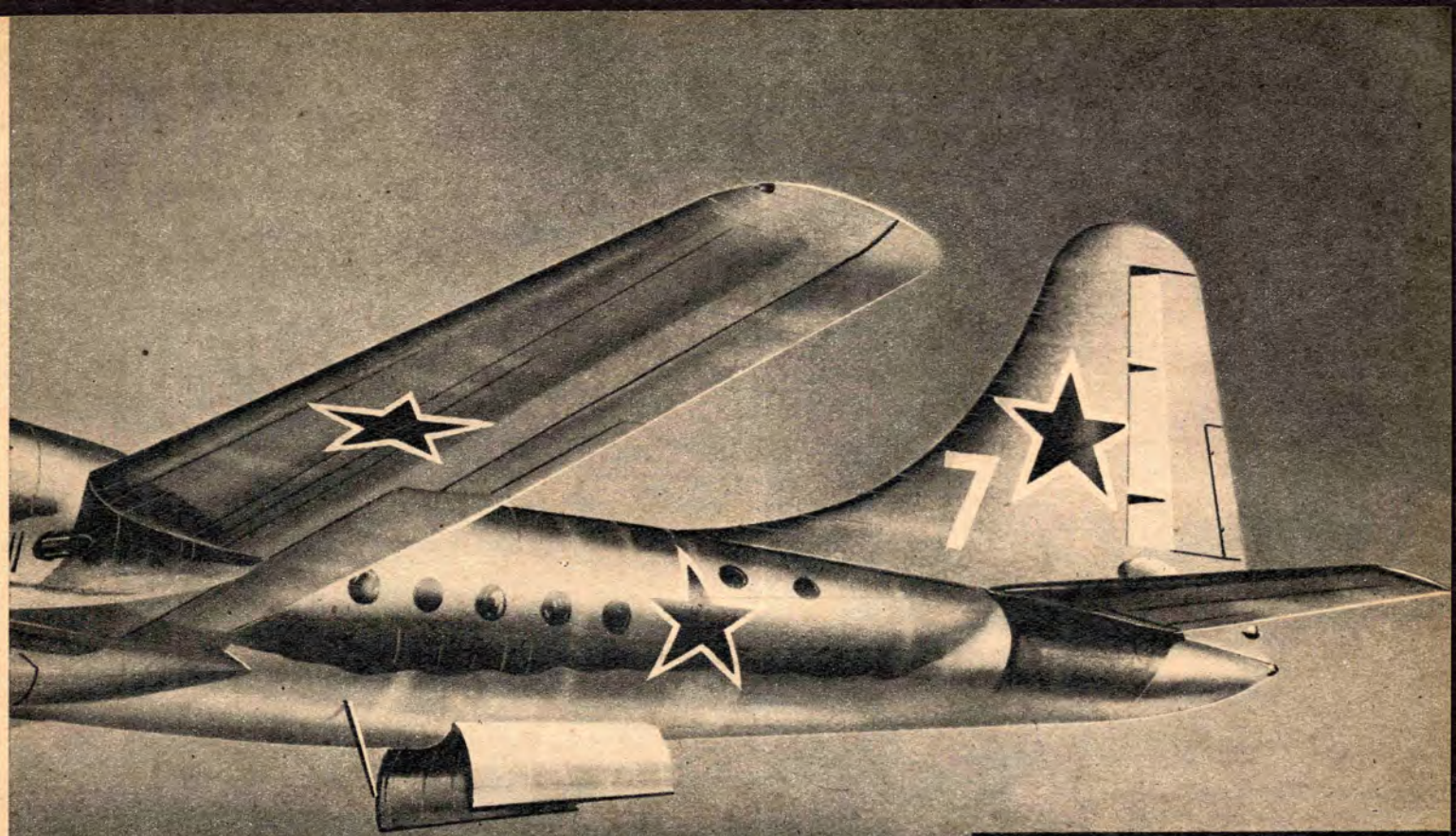
The key to Russian military strength is the Army, but the Kremlinites realize that, despite its size, any land offensive launched by the Red Army would soon come to a halt if it lacked strong air support. Thus, the major proportion of the Soviet Air Fleet comes under direct Army control and is used almost solely as an instrument for the immediate support of the land forces.

This tactical support component of the SovAF comprises some twenty Air Armies; an Air Army being a rather loose organization, varying in the number of Air Divisions and regiments that it contains with the importance of the sector to which it is committed. During World War II an Air Army varied in strength from 500 to 2,000 combat planes, according to the intensity of the air war in that particular area of the front and its rating on the list of supply priorities. An Air Division usually comprises three or four regiments, these in turn containing up to four squadrons of twelve airplanes each and corresponding roughly to a USAF wing.

The SovAF fighter regiments use the same airplane types as those used by the PVO home-defense elements, and the *Shturmovik* groups, which, until a few years ago favored slow, heavily armored planes, are for the most part equipped with twin-jet bombers in the weight/size category of the B-57A Canberra. These are also used for medium and high-altitude bombing attacks as part of the Soviet program of reducing the number of individual airplane types to which production is committed. The Reds have learned the lesson that a multiplicity of models not only hampers production but complicates maintenance and the supply of spares in a fast-moving campaign.

Two different twin-jet attack bombers are now available in considerable numbers to SovAF *Shturmovik* elements, the Ilyushin Il-28 (erroneously referred to in the past as Tu-10 and Il-26), and a machine referred to by Western air intelligence as the *Type 35* but also generally credited to Sergei Ilyushin's design team.

The Il-28 has become the "maid-of-all-work" of the SovAF, having been adapted to undertake the roles of night



Standard long-range military Tu-70 as paratroop transport with two large ventral dropping hatches.

intruder/patrol fighter, pilot conversion trainer, and coastal shipping attack as well as its basic task of short-range tactical bombing.

Power is furnished by two axial-flow turbojets in the 5-6,000 lb. thrust class which place top speed at sea level in the 550-570 mph bracket. Cruising speed is upwards of 470 mph, and operational ceiling 45,000 feet. Of comparable size, the other twin-jet attack bomber is believed to fulfill more closely the role of the wartime *Shturmovik*. A low-shoulder wing airplane spanning about 70 feet, the *Type 35* is a two/three seater with a circular-section fuselage and unswept wing and tail surfaces. The two large underslung turbojet nacelles contain centrifugal type RD-45 units of 6,000 lb. thrust, and although lacking much of the aerodynamic refinement of the B-57A, this airplane is believed to have a top speed close up to 600 mph. These jet bombers are to replace the remaining piston-engined Tu-2 and Tu-6 bombers during this year.

Transport airplanes figure prominently in SovAF equipment, and the commercial airlines, *Aeroflot, Aviaarktica,* and *Hamiata,* used for the most part aircraft that form standard SovAF equipment, thus offering a valuable reserve for the Army air transport elements.

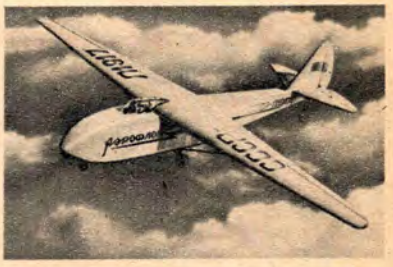
The Il-12 and Li-2 (license-built DC-3) remain the standard medium-range transports of the SovAF and the airlines of the Soviet Union and her satellites. The two major variants of the Il-12 are the military version with large double-entry cargo doors on the port rear fuselage and accommodating up to forty paratroops; and the other as a 24-32 passenger commercial airliner. The Il-12 is the Russian equivalent of the Convair 240, and a number of modifications have been made since its introduction, including the strengthening of the nosewheel leg, redesign of the engine cowlings, removal of the rubber de-icing boots on tail assembly leading edge, and the addition of more comprehensive radio navigational aids.

The Il-12 is also used as a glider tug and is frequently seen towing one or other of the two types of heavy freight and troop-carrying gliders that are used in considerable numbers by the SovAF. One of these, designed by Alexander Yakovlev, bears a strong resemblance to the British General Aircraft Hamilcar of wartime vintage. Spanning some 90 feet, it carries some thirty-five fully-equipped troops at towing speeds of 170 mph. The other glider, designed by P. V. Tsibin, carries twenty.

The standard long-range military transport is the Tu-70 (the designation is probably a factory-allotted type number). This transport, based on the Tu-4 bomber but featuring an entirely new fuselage with a step-down pilot's windscreen, carries some 110 fully-equipped paratroops. On trans-continental services inside Russia, it accommodates 72 passengers.

For liaison and ambulance duties, the Yak-14 lightplane in the Cessna Birddog category has largely replaced the ancient but (*Continued on page* 60)

Training version of the Il-28 attack bomber, the U-Il-28. Service types include light bomber and ground attack.



Used both for military and civilian purposes, the Tsibin glider illustrated here belongs to the Aeroflot airline.

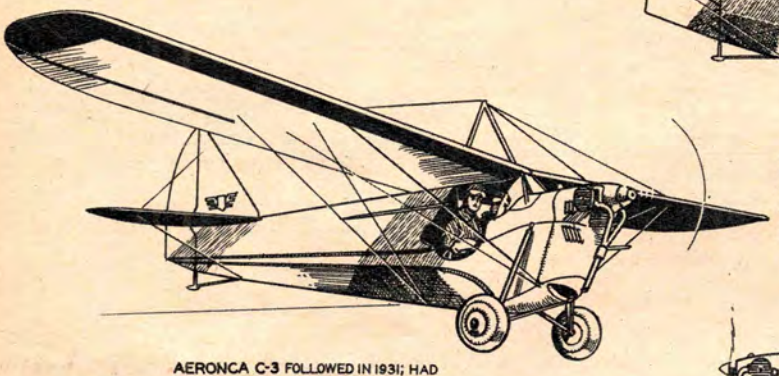
Soviet Air Force standard troop and cargo glider designed by Yakovlev. Span is 85 ft. Towed by Il-12 transports.

AIR PROGRESS

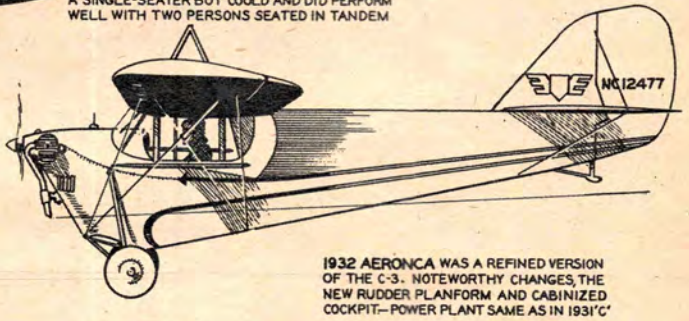
By DOUGLAS ROLFE

The Aeronca Story

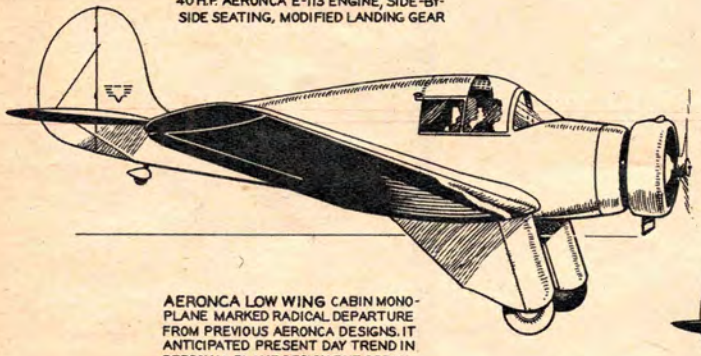
FIRST AERONCA APPEARED IN 1930 — IT RESEMBLED AND WAS PROBABLY INSPIRED BY THE 1923 BRITISH "WEE BEE". POWERED WITH A 28 H.P. AERONCA ENGINE IT WAS NOMINALLY A SINGLE-SEATER BUT COULD AND DID PERFORM WELL WITH TWO PERSONS SEATED IN TANDEM



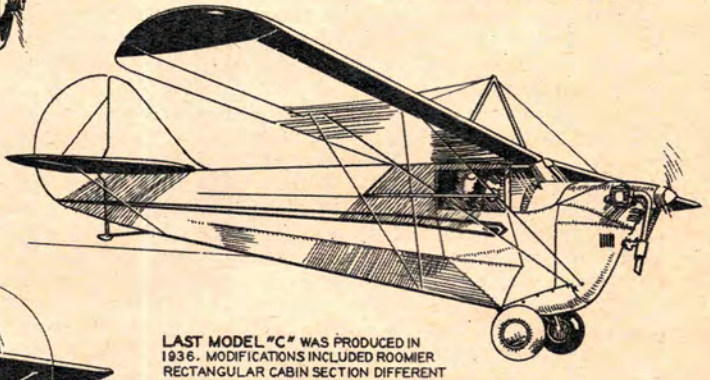
AERONCA C-3 FOLLOWED IN 1931; HAD 40 H.P. AERONCA E-113 ENGINE, SIDE-BY-SIDE SEATING, MODIFIED LANDING GEAR



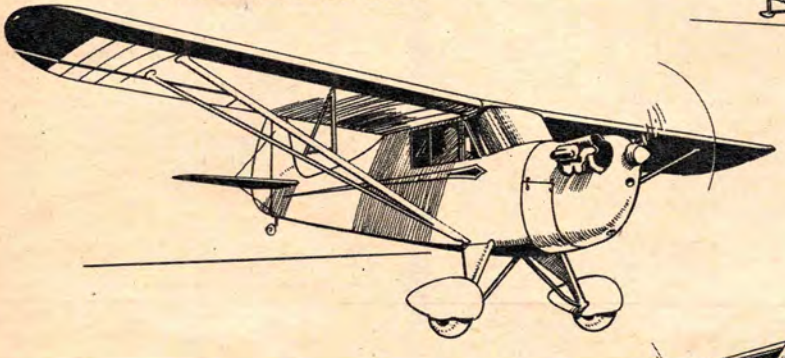
1932 AERONCA WAS A REFINED VERSION OF THE C-3. NOTEWORTHY CHANGES, THE NEW RUDDER PLANFORM AND CABINIZED COCKPIT—POWER PLANT SAME AS IN 1931 'C'



AERONCA LOW WING CABIN MONOPLANE MARKED RADICAL DEPARTURE FROM PREVIOUS AERONCA DESIGNS. IT ANTICIPATED PRESENT DAY TREND IN PERSONAL PLANE DESIGN BUT ODDLY ENOUGH WAS NEVER DEVELOPED. (1936)



LAST MODEL "C" WAS PRODUCED IN 1936. MODIFICATIONS INCLUDED ROOMIER RECTANGULAR CABIN SECTION DIFFERENT RUDDER OUTLINE AND LANDING GEAR

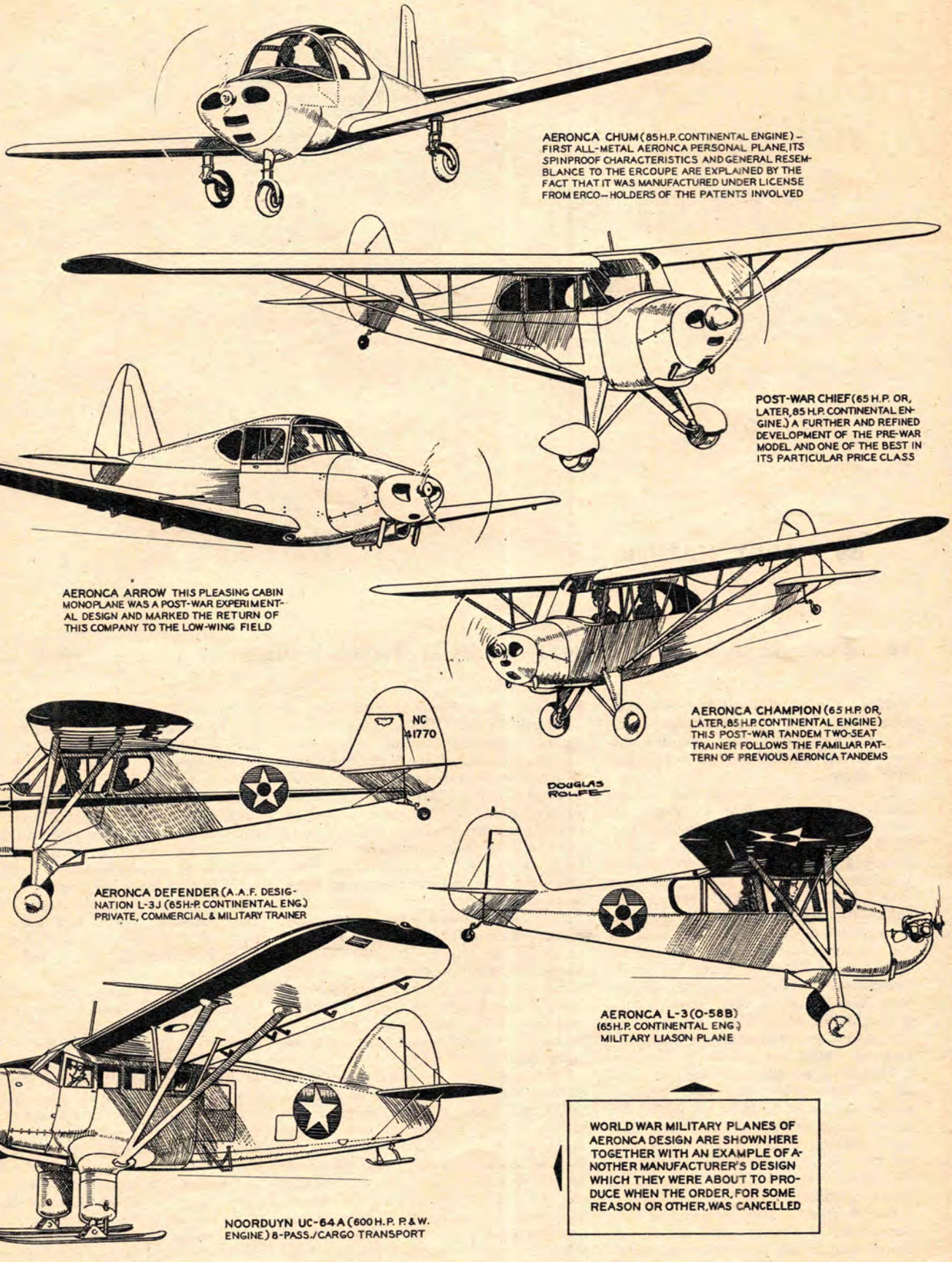


AERONCA CHIEF SERIES ORIGINATED IN 1938 WITH THE ▲ MODEL 50 SHOWN HERE. VARIOUSLY POWERED WITH 50 H.P. ENGINES IT WAS A CONVENTIONAL SIDE-BY-SIDE TWO SEATER

IMPROVED CHIEF 50 FOLLOWED IN 1939, WAS CLEANED ▶ UP VERSION OF THE PROTOTYPE MODEL 50 AND PRICED WELL BELOW THE AVERAGE LOW-PRICE CARS AVAILABLE TODAY.

The name Aeronca has been closely associated with personal plane design for nearly a quarter of a century and is derived from the corporate title of the firm—The Aeronautical Corporation of America. First Aeronca placed on the market was a high-wing single seater designed by Jean A. Roché, onetime top U. S. Army Air Corps aeronautical engineer and authority on aerodynamics. His Aeronca Model C-2 would today be considered an ultra-light lightplane, but had remarkable performance considering its low power.

The "C" series was dropped in 1936 and after a short venture into the low-wing field Aeronca came out with the famed "Chief" and "Tandem" models which with minor


AERONCA CHUM (85 H.P. CONTINENTAL ENGINE) – FIRST ALL-METAL AERONCA PERSONAL PLANE, ITS SPINPROOF CHARACTERISTICS AND GENERAL RESEMBLANCE TO THE ERCOUPE ARE EXPLAINED BY THE FACT THAT IT WAS MANUFACTURED UNDER LICENSE FROM ERCO – HOLDERS OF THE PATENTS INVOLVED
POST-WAR CHIEF (65 H.P. OR, LATER, 85 H.P. CONTINENTAL ENGINE.) A FURTHER AND REFINED DEVELOPMENT OF THE PRE-WAR MODEL AND ONE OF THE BEST IN ITS PARTICULAR PRICE CLASS
AERONCA ARROW THIS PLEASING CABIN MONOPLANE WAS A POST-WAR EXPERIMENTAL DESIGN AND MARKED THE RETURN OF THIS COMPANY TO THE LOW-WING FIELD
AERONCA CHAMPION (65 H.P. OR, LATER, 85 H.P. CONTINENTAL ENGINE) THIS POST-WAR TANDEM TWO-SEAT TRAINER FOLLOWS THE FAMILIAR PATTERN OF PREVIOUS AERONCA TANDEMS
NC 41770
DOUGLAS ROLFE
AERONCA DEFENDER (A.A.F. DESIGNATION L-3J (65 H.P. CONTINENTAL ENG.) PRIVATE, COMMERCIAL & MILITARY TRAINER
AERONCA L-3 (O-58B) (65 H.P. CONTINENTAL ENG.) MILITARY LIASON PLANE
NOORDUYN UC-64A (600 H.P. P. & W. ENGINE) 8-PASS./CARGO TRANSPORT
WORLD WAR MILITARY PLANES OF AERONCA DESIGN ARE SHOWN HERE TOGETHER WITH AN EXAMPLE OF ANOTHER MANUFACTURER'S DESIGN WHICH THEY WERE ABOUT TO PRODUCE WHEN THE ORDER, FOR SOME REASON OR OTHER, WAS CANCELLED

modifications are still decidedly popular U.S. lightplanes.

During World War II Aeronca made major contributions by supplying liaison planes and glider trainers of its own design. It also built planes to other manufacturers' designs—notably the Fairchild primary trainers. Like other manufacturers it entered the postwar period with several ambitious designs to meet the expected and unfulfilled market for personal planes. Both the Aeronca designed low-wing cabin plane and the later type built under license from Erco (Weick) failed to achieve their purpose in a dwindling market, and the postwar model "Champion" remained the principal and more salable production model.

I watched Wilbur fly

By HARRY HARPER

The dean of aviation reporters recalls a Twilight flight in France, 1908 . . .

■ It was the gift of a tiny toy helicopter to a couple of eager schoolboys which led to one of the greatest scientific and engineering triumphs the world has ever known.

Those two schoolboys had names which are now familiar to people all over the globe. They were Wilbur and Orville Wright, and it was their father, Bishop Wright, who brought them home this present one day. When they saw that ingenious little elastic-driven machine—its revolving vanes just a couple of feathers—flutter up from a table to the ceiling, those two boys were fired by an ambition which never left them. They made up their minds, there and then, that between them they would design, build, and fly the world's first engine-driven, man-carrying, heavier-than-air flying machine.

That they actually did this we shall all be remembering this year, because on December 17th, 1953, we reach the fiftieth anniversary of the very first power-driven flights which those two brothers achieved from their camping-ground on the sand hills at Kitty Hawk, North Carolina.

World celebrations will mark the completion of the first half-century of flying. And to me, personally, the coming anniversary will have a very special significance, seeing that as the world's first air reporter it was my privilege not only to know Wilbur and Orville personally, and also their sister Katherine —who did much to encourage them in their early experimental work—but I also had the memorable experience of watching the great Wilbur make one of the most spectacular of his early flights.

It was like this. After Wilbur and Orville had written their names on history by their first brief flights at Kitty Hawk on December 17, 1903, one lasting 12 seconds and the other 59 seconds, they went back to their home town, Dayton, Ohio, and, from a neighboring open space, began to improve rapidly on those short early flights.

I myself remember how, at a meeting of our Aeronautical Society in London, an early air friend of mine, Patrick Alexander, got up one evening in 1905 and read a letter he had just received from Wilbur Wright, in which the latter said that he and his brother were now beginning to make nonstop flights of more than twenty miles.

This came as a great surprise to us, because up till then very little reliable news had been reaching England as to what the Wrights were actually doing. The reason for this was that until they were able to cover their invention by world patents, they very naturally worked in a good deal of secrecy. Once, however, the necessary patent rights had been secured, Wilbur decided to bring one of their machines over to France and show the world, without any shadow of a doubt, that the problem of centuries had been solved, and that a fully controlled, engine-driven, man-carrying aeroplane had now become a definitely practical proposition.

Wilbur had brought his machine to an artillery range at Le Mans, and it was here that I went to have a talk with him, and to see him fly.

Although, in my life's work in aviation, right from our ballooning days onwards, I have watched many wonderful things, that evening in France, away back in the summer of 1908, still stands out in my memory as probably the greatest of all my personal thrills.

Up to that time the proponents of flying machines, such as Ader, Maxim, and Santos-Dumont, had done little more than achieve brief "hops." But Wilbur showed us that evening what *flying* really meant.

I shall never forget my excitement when, after the already famous man had taken his seat at the controls, his engine was started up and the twin air-screws began to revolve. Then, slowly at first, the latest Wright aeroplane began to move along its starting rail.

I remember how in my mind, even then, I wondered whether this miracle was really going to happen, and that I was about to see a man actually flying. But my doubts were soon dispelled.

By the time it was nearing the end of its rail we could see that the machine was already air-borne. Then, skimming away smoothly, Wilbur climbed steadily as he sped along over the artillery range.

Up he climbed till he was a hundred feet or more high. Then he put his machine over in a wide, perfectly judged turn, and came flying back right over our heads, as we stood silent in wonder

and fascination just beside his shed.

It was an unforgettable experience, that! The evening was calm. Conditions were perfect for flying. And there, wheeling and maneuvering in the quiet sky above us, was this great pioneer in his wonder-craft, doing things which neither we nor any other men had ever seen before.

That evening Wilbur appeared inspired. He and his machine seemed one. Now flying high, now just sweeping only a few feet above the ground, that first master of the air held us spellbound. What I remember more than anything else was the smooth accuracy with which he sent that biplane sweeping round in a series of turns.

It was in this particular evolution that Wilbur was helped by the way in which the warping of his wingtips, for lateral control, was interconnected with the operation of his rear rudders. This meant that, as Wilbur tilted over his machine very easily and gently, it seemed just to slide round on a turn like a car banking on a race track.

As we watched, the great man climbed suddenly higher into the evening sky. Then, twilight now beginning to give place to dusk, he came stealing down like some big, wide-winged night bird, and landed with absolute precision a few short yards from his audience.

Breaking into a cheer, we ran towards him as he climbed down in leisurely fashion from his pilot's seat. He accepted our congratulations with that quiet composure which was typical of him. Wilbur was essentially a man of action, and not inclined to talk much. But later that same evening, as we sat together, I began to get a pretty clear idea about something which had been puzzling me, and this was how it was that these two brothers, working just by themselves and without government grants or outside help of any kind, had managed to do something man had never succeeded in doing before.

It was very quietly that Wilbur told me how, first of all, they had studied everything that had been done before by previous experimenters. They were in no hurry. They made no hasty step. A man-driven engined aeroplane might be made to fly, or it might not. They did not know. But what they did mean to do was to find out.

After they had begun to build some first gliding machines, flying them as kites, and controlling them with cords from the ground, they found that curved wing surfaces as evolved by previous experimenters were shown to be disappointing in the lift they actually developed. So they made up their minds to build a small wind-tunnel—the first of its kind—and began a long series of tests with miniature wings, shaped and cambered to their own design.

When they tested these out-of-doors, on a bigger scale, they were greatly encouraged by the results they obtained. Then when they themselves began to take their places in still larger machines, and make man-carrying glides down the sides of the sand hills, they worked patiently on the problems of lateral and fore-and-aft control, testing many different rudders, elevators, and wing-warping devices.

Hundreds of motorless glides were made down the sand hills. And then when they felt ready to put an engine in a still bigger glider, and attempt power-driven flight for the first time, they were up against the problem of obtaining a sufficiently light gasoline engine for this very special purpose. Inquiries among the builders of early automobiles produced no very encouraging results. And so in their workshop at Dayton they built their own small four-cylinder water-cooled aero-engine, developing about 12 horsepower.

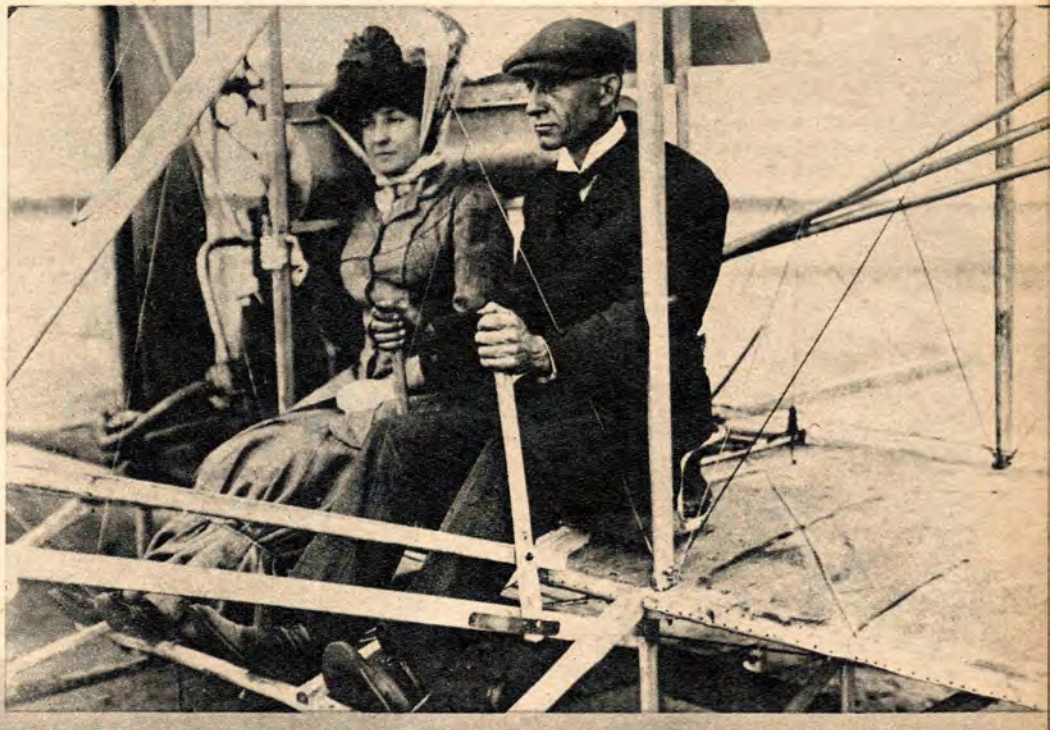
Even then their problems were far from being at an end. There was, for instance, the extremely complex question of air-screws to absorb the power of that pioneer motor. Here there was practically nothing in the way of previous data that could be relied upon, and it was only after a long series of discussions and many experiments that they eventually produced a twin-air-screw system which took the power of their motor through chain-gearing.

All this Wilbur explained to me in his unhurried, deliberate way. But there was one thing, he said, finally, which seemed to me to throw an all-revealing light on the whole problem. Any successful piece of mechanism, he reminded me, must be built up of many different parts which, when they are assembled, must all work together so harmoniously that, instead of continuing to be just a lot of separate components, they begin to give that completed machine what one might call an individuality or personality of its own.

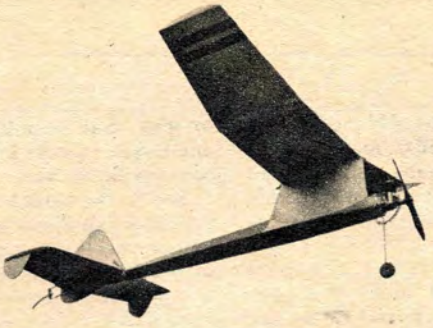
And in the aeroplane, he added, while previous experimenters had perhaps got one or two things right, they had failed to perfect some other essential part in a way which prevented that machine from doing what they expected it to do. Here what he and Orville had done was to work so long and patiently, beforehand, on every detail of their man-carrying machine—wings, air-screws, engine, and controls—that when all these parts finally came together, in that first of all power planes, they each of them did their job precisely as had been planned. And so it was that the world saw the advent of the first successful aeroplane.

One final impression. As we were walking across from the artillery range to a little restaurant where we had dinner, Wilbur shook his head regretfully while forecasting the almost inevitable way the flying machine would be seized upon as a new and deadly weapon in war. Coming to a standstill, and turning to me with great earnestness, Wilbur said he was convinced, as was his brother Orville, that the sheer speed of the aeroplane would prove a blessing rather than a curse to the world.

And I know that Wilbur's faith in the future of flying, not for purposes of destruction but as a super-swift means of carrying passengers, mails and freight, never wavered for a moment. And although he himself died in 1912, before the commercial plane was developed, his brother Orville lived to see networks of airways over the globe.



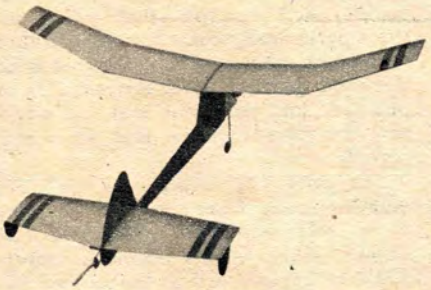
Wilbur Wright in France with Mrs. Hart O. Berg, first woman passenger in a Wright machine.

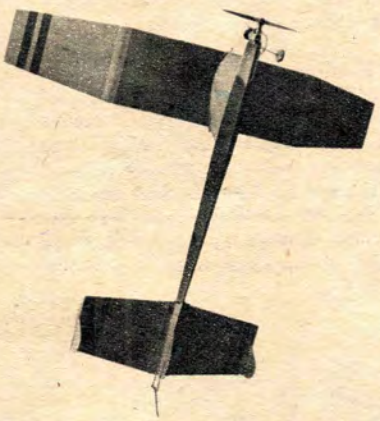


Any one-sixteenth sheet balsa around? That's all you need to turn out this pretty baby; and once built she's warp-proof

By AUBREY "RED" KOCHMAN

Sweet Sixteenth



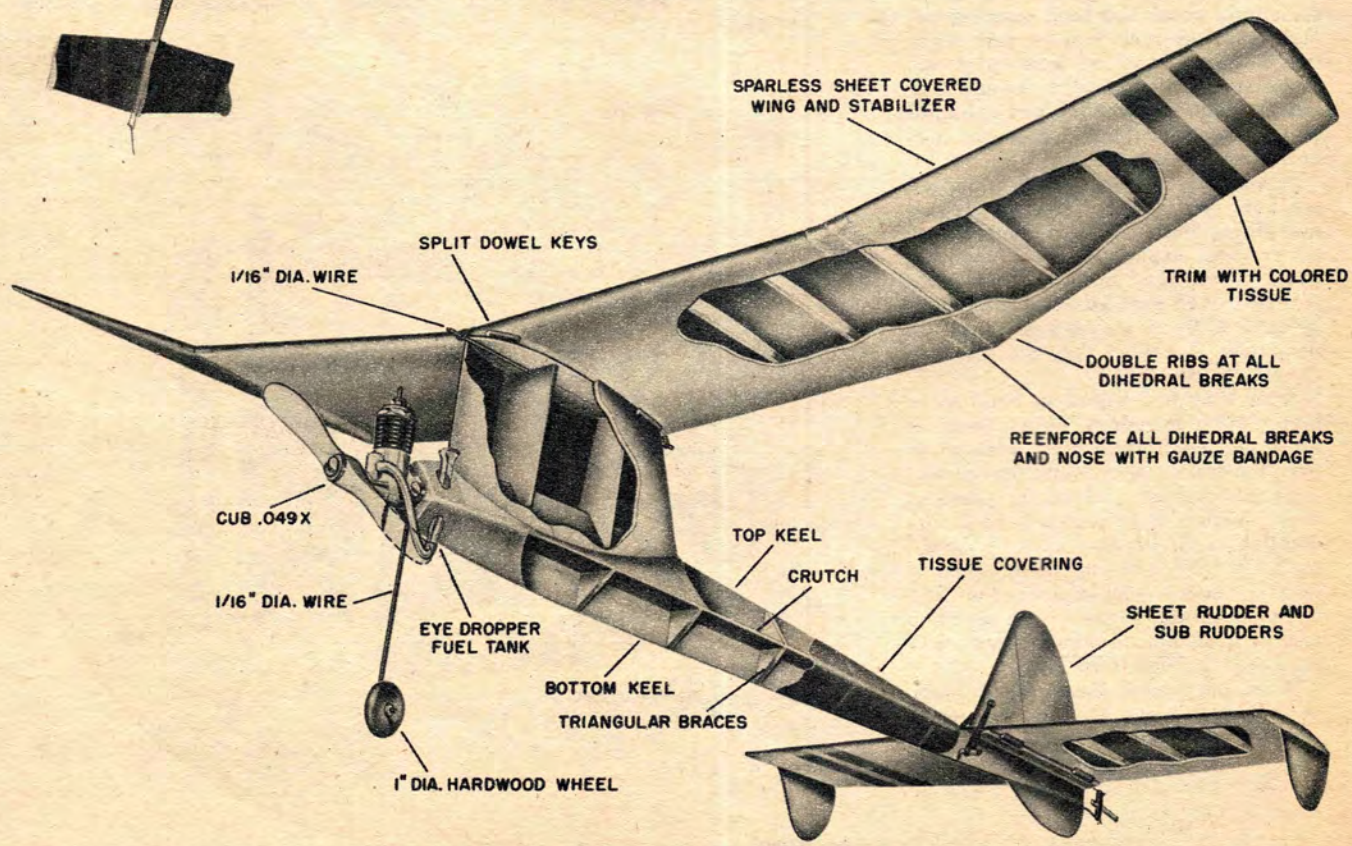


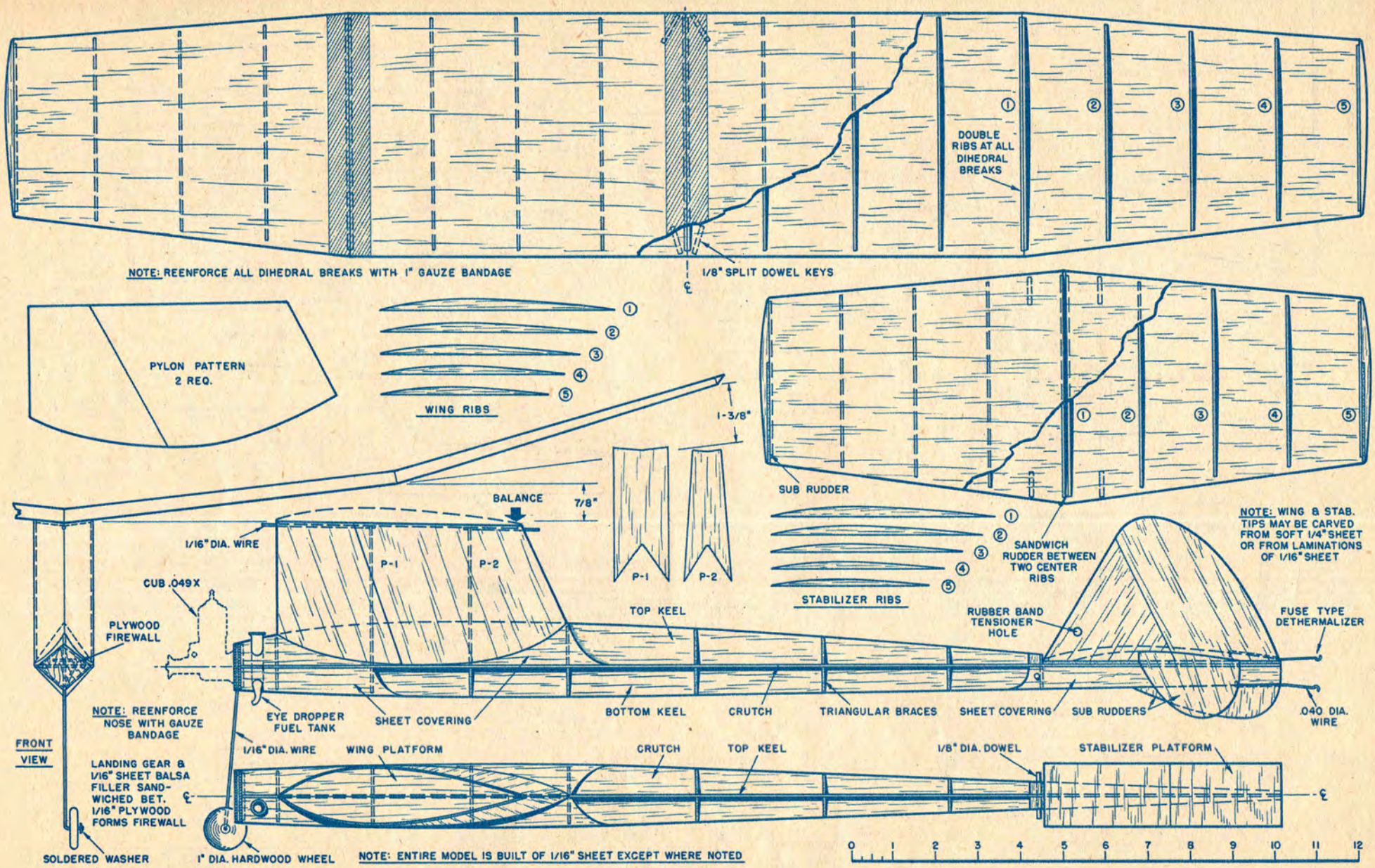
■ SWEET SIXTEENTH, though fairly conventional as far as plyon model design goes, offers a different approach construction-wise since practically the entire model is built of 1/16" thick sheet balsa. This type construction, aside from being exceptionally simple and fast, results in a warp-resistant ship which when once adjusted to a definite flight pattern, will consistently fly this same pattern so long as the engine speed and propeller are not changed.

Selection of the 1/16" sheet stock is very important and great care should be taken to insure a light yet sturdy model. It is best to use 6" sheet stock for the wings and stabilizer, but if not available or for sweet economy's sake you can use 3" wood. Select sheets of uniform weight and grain, medium soft and straight grain being best. Two sheets of 1/16" x 3" x 36" preferably quarter-grained are ample for the fuselage, ribs, rudder, sub rudders, wing platform and the stabilizer platform. The plyon covering sheets can be cut from the same sheets used for the stabilizer. No difficulty should be encountered during construction if the following procedure is followed.

Build the wings, stabilizer and fuselage in that order as the wings require the longest drying time. The wing is built in four separate panels. Cut out the four sheets that form the bottom sheet covering, using a metal right triangle if possible to insure squareness. Note that the chord is under 6". The top sheeting, however, should be left oversize to allow for the bend. Mark off the rib locations and cement the ribs in place. Tilt the end ribs in slightly to approximate the proper dihedral angle. The exact angle is sanded in when joining the four panels.

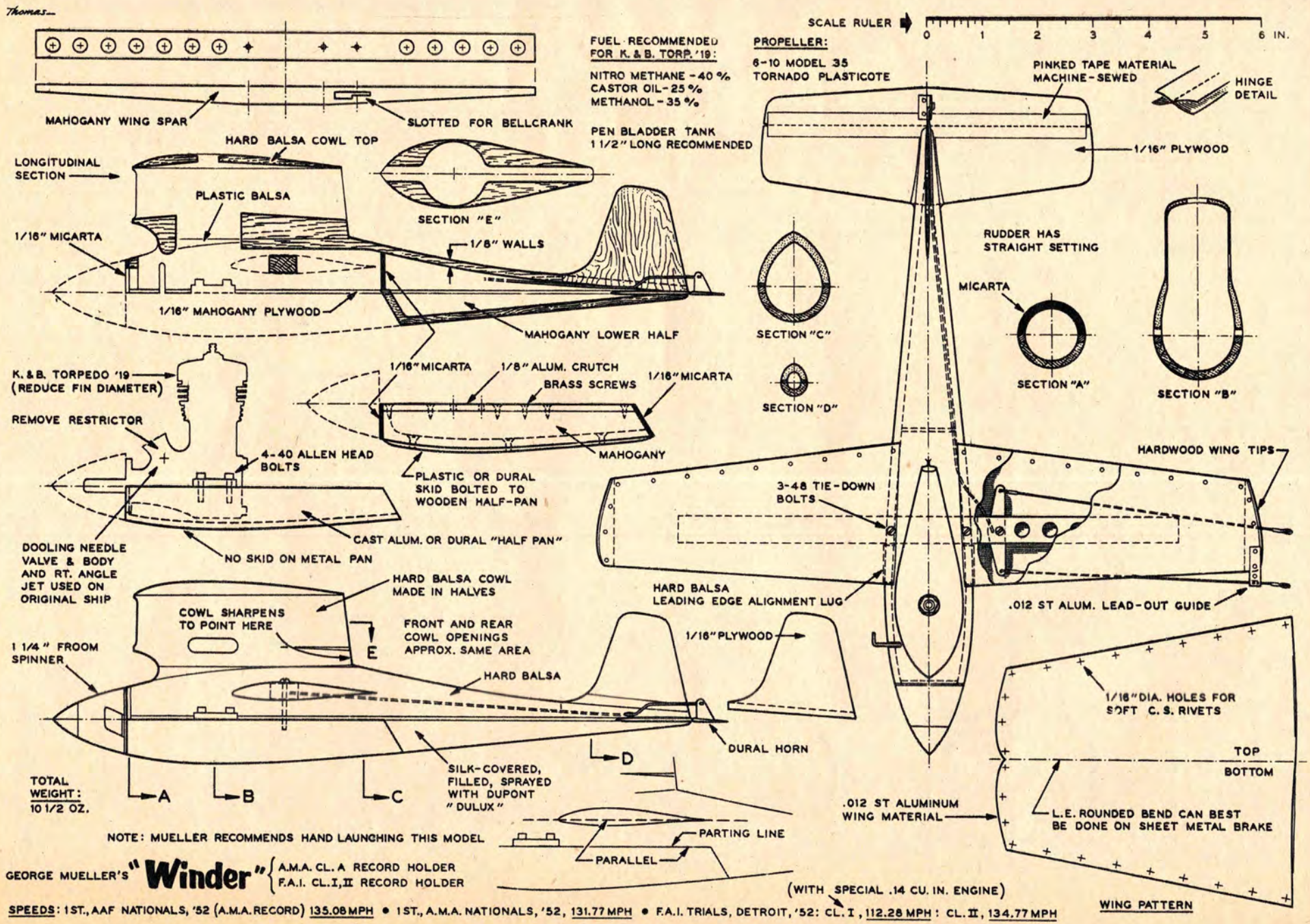
Further construction details will be found on "AT" full-size plans. See back-of-book listing.





FULL SIZE PLANS FOR BUILDING S.S. FROM AIR TRAILS—35¢

Get goin' for the coming contest season by building your own version of Mueller's Winder; send for full size plans from AT's Plan Dept., 35c


Thomas
SCALE RULER
0 1 2 3 4 5 6 IN.
MAHOGANY WING SPAR
SLOTTED FOR BELLCRANK
FUEL RECOMMENDED FOR K. & B. TORP. '19:
NITRO METHANE - 40 %
CASTOR OIL - 25 %
METHANOL - 35 %
PEN BLADDER TANK
1 1/2" LONG RECOMMENDED
PROPELLER:
6-10 MODEL 35
TORNADO PLASTICOTE
PINKED TAPE MATERIAL
MACHINE-SEWED
HINGE DETAIL
1/16" PLYWOOD
HARD BALSA COWL TOP
LONGITUDINAL SECTION
PLASTIC BALSA
SECTION "E"
1/16" MICARTA
1/8" WALLS
1/16" MAHOGANY PLYWOOD
MAHOGANY LOWER HALF
SECTION "C"
RUDDER HAS STRAIGHT SETTING
MICARTA
SECTION "A"
SECTION "B"
K. & B. TORPEDO '19
(REDUCE FIN DIAMETER)
REMOVE RESTRICTOR
4-40 ALLEN HEAD BOLTS
1/16" MICARTA
1/8" ALUM. CRUTCH
BRASS SCREWS
1/16" MICARTA
MAHOGANY
SECTION "D"
PLASTIC OR DURAL SKID BOLTED TO WOODEN HALF-PAN
CAST ALUM. OR DURAL "HALF PAN"
NO SKID ON METAL PAN
DOOLING NEEDLE VALVE & BODY AND RT. ANGLE JET USED ON ORIGINAL SHIP
HARDWOOD WING TIPS
3-48 TIE-DOWN BOLTS
HARD BALSA LEADING EDGE ALIGNMENT LUG
.012 ST ALUM. LEAD-OUT GUIDE
HARD BALSA COWL MADE IN HALVES
COWL SHARPENS TO POINT HERE
FRONT AND REAR COWL OPENINGS APPROX. SAME AREA
1 1/4" FROOM SPINNER
HARD BALSA
1/16" PLYWOOD
DURAL HORN
1/16" DIA. HOLES FOR SOFT C. S. RIVETS
TOP
BOTTOM
L.E. ROUNDED BEND CAN BEST BE DONE ON SHEET METAL BRAKE
.012 ST ALUMINUM WING MATERIAL
SILK-COVERED, FILLED, SPRAYED WITH DUPONT "DULUX"
TOTAL WEIGHT: 10 1/2 OZ.
A
B
C
D
E
PARTING LINE
PARALLEL
NOTE: MUELLER RECOMMENDS HAND LAUNCHING THIS MODEL
GEORGE MUELLER'S "Winder" { A.M.A. CL. A RECORD HOLDER F.A.I. CL. I, II RECORD HOLDER
(WITH SPECIAL .14 CU. IN. ENGINE)
WING PATTERN
SPEEDS: 1ST., AAF NATIONALS, '52 (A.M.A. RECORD) 135.08 MPH • 1ST., A.M.A. NATIONALS, '52, 131.77 MPH • F.A.I. TRIALS, DETROIT, '52: CL. I, 112.28 MPH: CL. II, 134.77 MPH

World's Fastest "A"!

Meet the model that set the speed world on its ear last season... now better'n ever

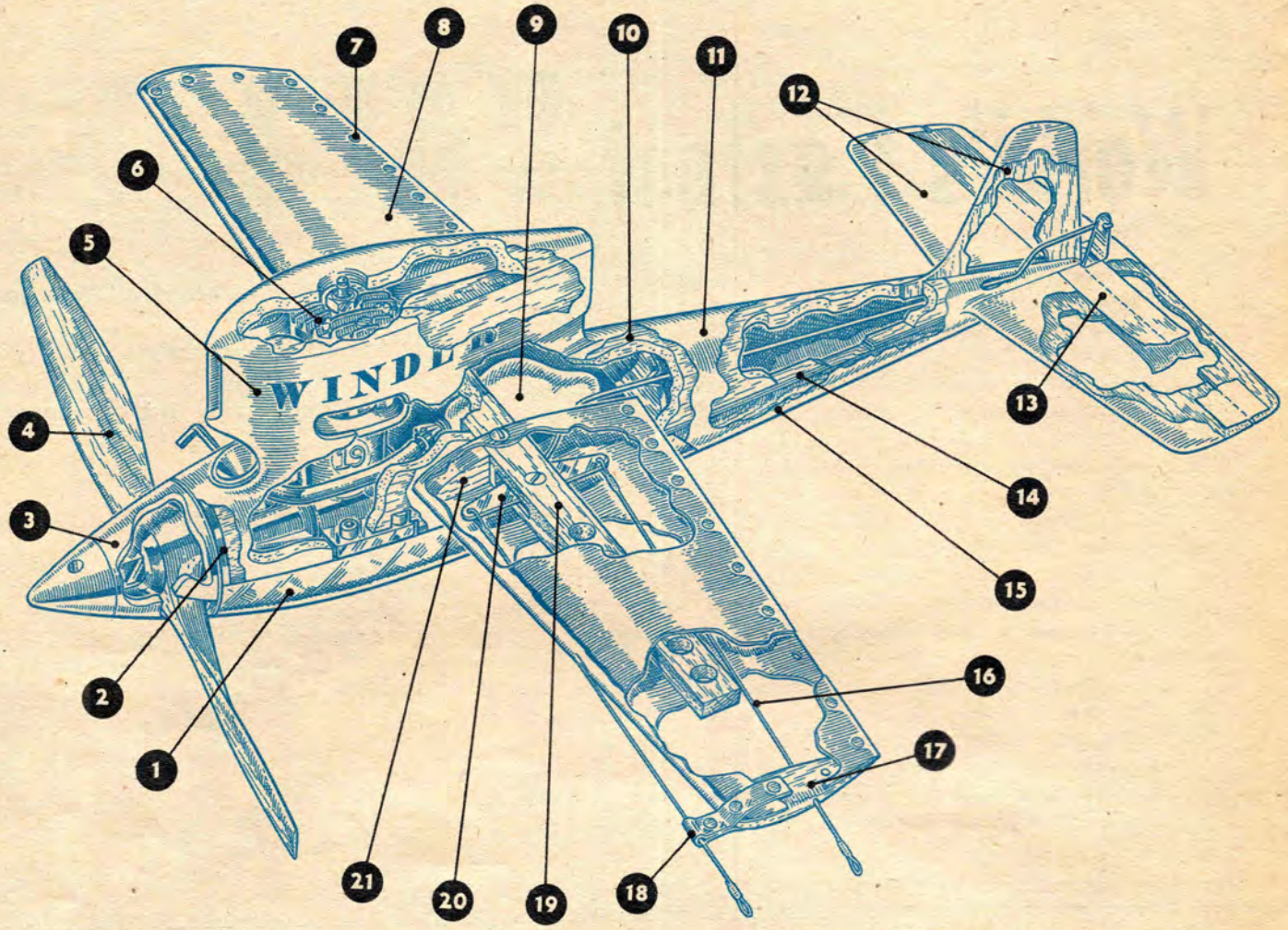
■ *The Winder* is the product of over one year of building and developing, a consistent contest winner and National and F.A.I. record holder, as well as being easy to construct and very stable to fly.

The fuselage top half is made from a piece of 1" x 1½" x 10¼" hard, straight-grained balsa wood. Glue this block to a 1/16" mahogany plywood crutch which is the outline of the fuselage design. Make sure the crutch does not go all the way back to the end of the fuselage, but just far enough so that the stab will match up to the end of the crutch. Draw the design of the cowl on the top of the block and carve the fuselage shape up to, and around, the cowl platform. Hollow out the top half of the fuselage. The fuselage wall is not less than ⅛" thick. Don't forget the airplane needs strength since it is made of balsa. Make the bottom half of the fuselage. On my latest ship, I used mahogany so it will be very strong, as well as comparatively light in weight.

Notice that the front half of the lower side of the fuselage is the pan. This may be made of mahogany, with a ⅛" aluminum crutch to hold the engine and top half in place. Also an aluminum one-half pan may be used as on the record-breaking airplane. My own one-half pan was made by Gene Stiles and Jack Friedland, but any commercial pan may be used just by taking a hack-saw and cutting it in half.

Here he is: George Mueller of Phoenix, Ariz., who broke his own 1951 record last year, then went on to set an F.A.I. World Speed Mark in two classes. As we were going to press we learned it's "Mr." Mueller again and that he had repeated his 131.77 speed at Phoenix in January.

By S/SGT. GEORGE MUELLER, USAF



1. Cast dural half-pan used on original. See plan for wooden substitute, 2. Micarta half-former, 3. 1¼" Froom spinner, 4. 6-10 model 35 Tornado Plasticote propeller, 5. Hard balsa engine cowl, 6. K&B Torpedo .19 engine, 7. 1/16" dia. CS soft rivets, 8. .012 ST aluminum wing material, 9. Pen bladder and penny balloon pressure tank, 10. Hard balsa upper fuselage shell, 11. Silk-covered surfaces, filled and sprayed with Dupont "Dulux" synthetic enamel, 12. 1/16" plywood tail surfaces, 13. Pinked tape, sewed hinge, 14. 1/16" plywood full-length edge to upper half, 15. Mahogany lower fuselage shell, 16. Flexible cable lead-out lines, 17. Hardwood wing tips, 18. .012 ST aluminum front line guide, 19. Mahogany wing spar with lightening holes, 20. Dural bellcrank, 21. Hard balsa wing "lugs."

Glue the stab onto the top half, then glue the rear section of the bottom half to the top half. Fit the engine to the top half, then start construction of the cowl.

This is a very important part of the airplane since it streamlines the engine and provides the proper cooling it needs. A pressure cowl is used. It has proven to be the best type yet for this engine. The cowl sides are made in two pieces, left and right. When cut to proper shape, glue in place and allow to dry thoroughly. By making the sides in two pieces, the cooling passages may be cut into place very easily. Next, the top is glued into position, then shaped to fit the sides of the cowl. Cut all holes into the cowling at this point—exhaust, glow plug hole and venturi scoop.

Now comes one of the most important parts—the rudder. It is made of 1/16" mahogany, as are the stab and elevator. Draw a line through the center of the fuselage, then cut a slot into the fuselage and insert the rudder, glue and block up straight and allow to dry. Make sure the rudder is straight, as this is your control of the directional stability of the airplane.

The spar is next to go on the fuselage. It is made of mahogany also. Cut holes in the fuselage parallel to the parting half of the fuselage and insert the spar in place and glue thoroughly. Next, install the bellcrank and pushrod. At this point your fuselage is ready to be sanded to final shape. Then is covered with silk for strength and for a good paint job.

Now come the wings. They are made of .012 ST aluminum. This may be purchased at your local airport. Use the pattern shown on the plans. Cut around outline, then bend down the center line. Next, find a level place on your work bench and mark the holes along the trailing edge, drill with a 1/16" drill, then push rivets through and pound over with a small hammer, holding the wing in place with clamps during the riveting process. The rivets also may be purchased at your local airport or war surplus store: 1/16" diameter and over ¼" long.

Lead-out wires are installed; allow excess in case of error when bending the loops on the end. Now we start fitting the wings into place. First of all find a level place on the work bench, with a compass mark a line parallel to the parting halves centering through the wing spar. This will be a perfect alignment to the thrust line for the wings and tail assemblies. Trim the wing panels to fit the curve of the fuselage as closely as possible, as

this is another means of aligning the wings correctly.

At this point we are ready to install the wings. This may be done by using small wood screws in the spar, two on the top of the wing and at least one on the bottom of the wing, or the wings may be glued on as was done on my latest ship. The glue used is "Willhold," or in some sections called "Elmer's Glue." It is made by Acorn Adhesives, and is white in color, drying clear. The wing tips are made of either hard balsa or hard wood, riveted into place with the same type rivets that hold the wings together. We make our final check of alignment of the wings and tails in relation to the parting surface of the fuselage.

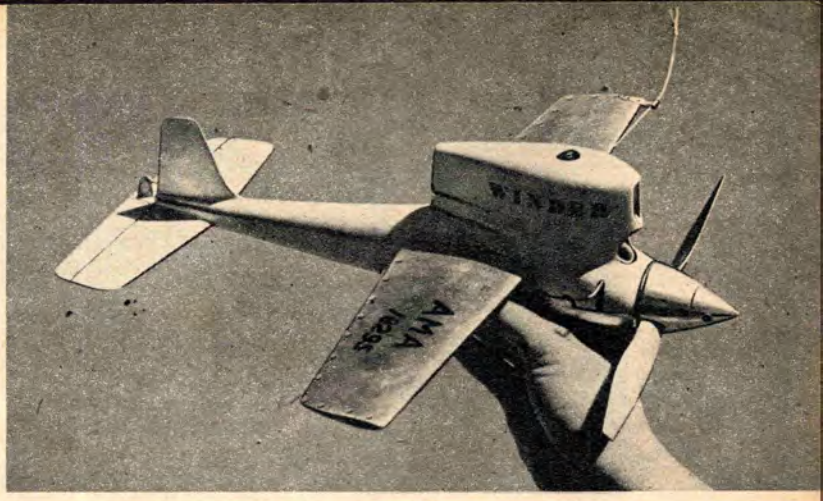
About now, we start our finish on the airplane. I used an undercoat of talcum powder and dope as a primer coat—at least three coats are used, sanding between each, the last coat being sanded lightly with 320 wet or dry sandpaper—enough to rough up the smooth surface. Next I used Duco Dulux Enamel paint. The first coat was sprayed on lightly, allowing approximately 30 minutes to dry before applying a good even coat as a final finish. Since we are using enamel, it is not necessary to sand to a smooth finish. Allow to dry 24 hours.

Now we have completed the airplane and are ready to fly it. It seems we have forgotten the most important items—the engine, gas tank and fuel used. O.K., let's take the engine first. It is a K&B Torpedo .19, which may be purchased at your local hobby shop. Remove the restrictor from the venturi and the needle valve arrangement. Purchase a Dooling or McCoy needle valve and body. Tap the hole in the venturi with a 10-32 tap and install the needle valve body, using a right angle jet on the other side. Bolt the engine in the pan, using 4-40 Allen Head bolts.

Next, the gas tank. This is one of the most simple as well as efficient tanks possible. It is a clean, natural rubber fountain pen bladder which may be purchased at your local fountain pen repair shop for a cost of about 15 to 20 cents. Cut the bladder to about 1½" long and insert a piece of fuel line tubing inside approximately a half inch, with a piece of ⅛" brass tubing inside the fuel line to prevent collapsing when wrapped. Next, take a small balloon and cut it the same length as the bladder; drop about four to six drops of castor oil inside the balloon and insert the bladder and fuel line in the balloon and wrap them tightly with sewing thread.

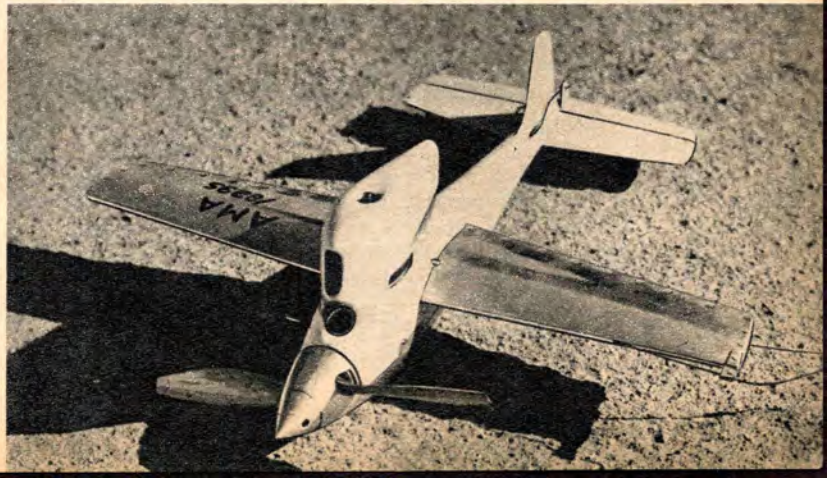
Now comes the fuel used in this aircraft. There are a number of questions asked me about this, but all I can say is, I don't use a lot of so-called "blast ingredients" the way most people think. I could go into great detail on what fuel to run for what temperature and humidity, but space does not permit. This is what I have found to be the best all-around fuel for just about anywhere in the United States: I use 40% nitro methane, 25% castor oil and 35% alcohol, and maybe a little amyl acetate (three or four drops to a pint of fuel).

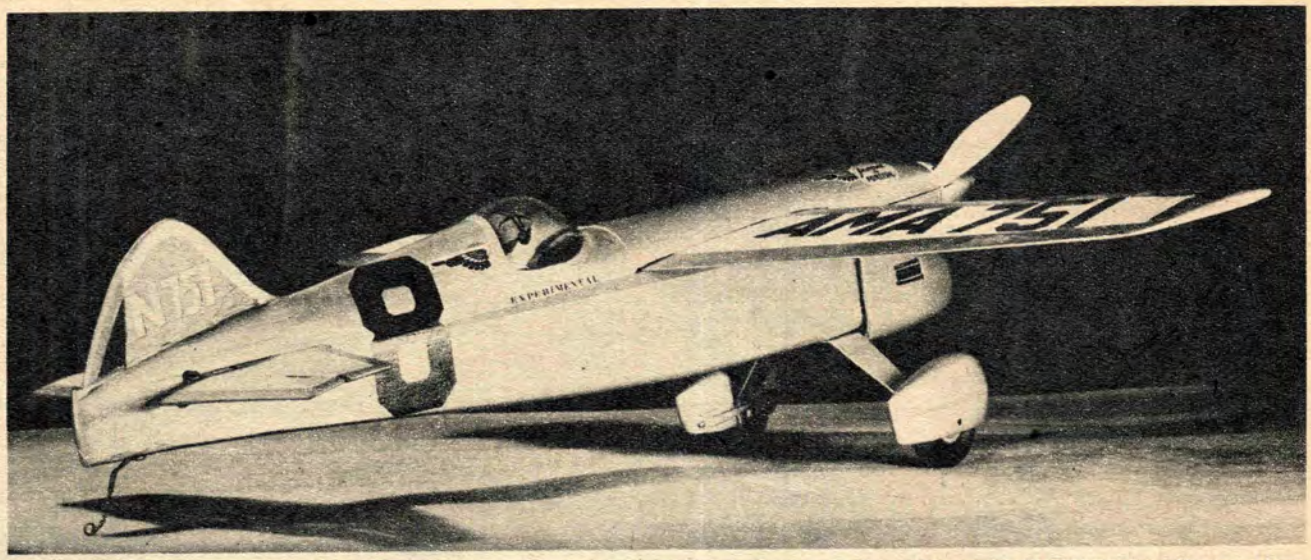
We are ready to fuel the *Winder* up and go flying. It seems we have forgotten about a dolly to take off from. Well, I don't use one. I get someone to hand-launch the airplane, but it is much wiser to have some kind of dolly for all-around flying success. My recommendation is a locking type dolly, using three wheels.



Wanna model that goes like the wind? "Winder" is the answer.

When it's engine-checking time in Amarillo: committee of experts including A/1C Mark Brown (rear, rt.) checks Winder's powerplant after record. Designer-flyer Mueller is in the hot seat at right, front. Everything was okay. This was when he did 134.27 mph at USAF Meet.





Your Torpedo or Forster engine will fit like charm. With a little hacking a McCoy or Dooling can be used to power this slick Typhoon-like team racer.

THE BARTLETT BULLET

By WARREN E. BARTLETT

Director, Plymouth International Model Plane Contest

Been troubled by tough Team Racers? Bart, the model builder's friend, makes 'em easy!

■ "Simple, rugged construction; everything easily accessible or replaceable; realistic and easy to fly." Keith Storey's words stuck with us for a couple of years after our first talk about building team racers, so they were pretty vivid when the *Bullet* was daydreamed onto a doodle pad one afternoon. She turned out long and low, and the "Typhoon" influence on the engine cowl helped to hide the boxiness of the rest of the fuselage.

However, she is easy to build, and the removable top and bottom cowls, wheel pants and wing make everything simple to repair or replace. The oversize engine mounts and crutch distribute all the loads and stresses evenly throughout the balance of the structure, resulting in a very sturdy airplane.

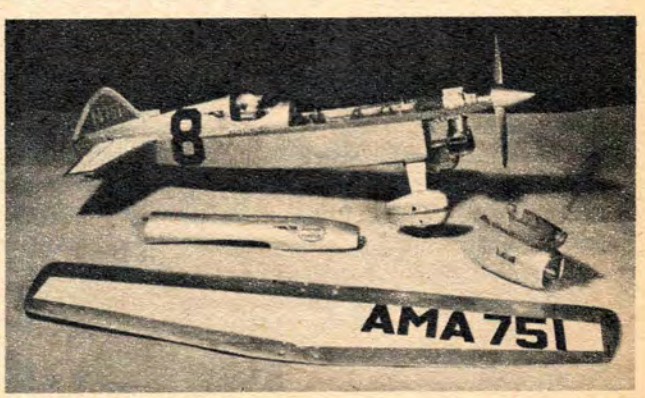
Although originally designed for the "off-center" mounting engines such as the Torpedo and Forster, recesses can be cut in the top of the engine mounts to accept the McCoy or Dooling. On the last recorded flight the *Bullet* averaged close to 90 mph for 35-40 laps. Best top speed has been just a hair over 105 mph using Supersonic 1000 and a nearly stock 8/9 Power Prop. But this, of course, is only an indication and will vary from model to model with different fuels and propellers.

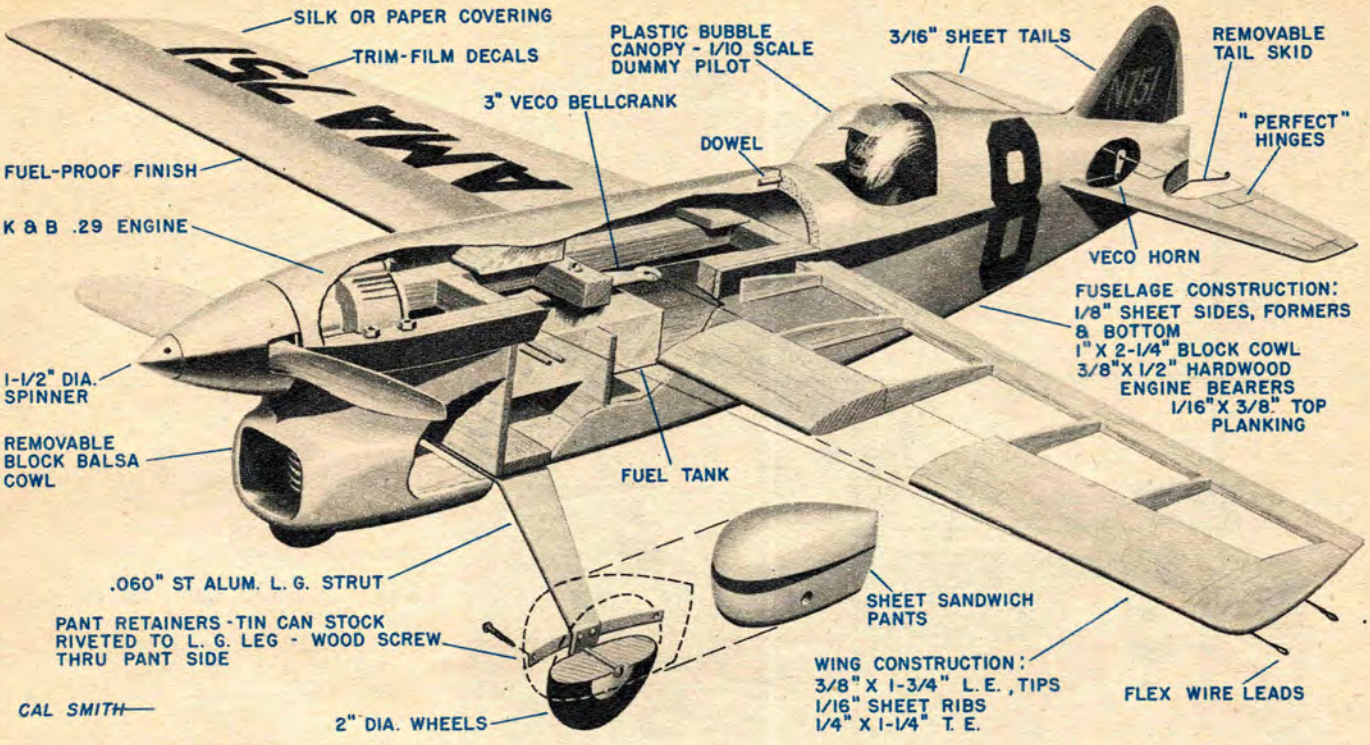
Construction is a lead-pipe cinch. Start anywhere you like. For the sake of continuity (a high-priced word meaning we couldn't think of any place better to start), let's give the fuselage a whirl first. Besides, even if you never finish it, the fuselage is an impressive part to show visitors—it looks more impressive than a wing. *(Complete construction details on "AT" full-size plans.)*

Bill of Materials

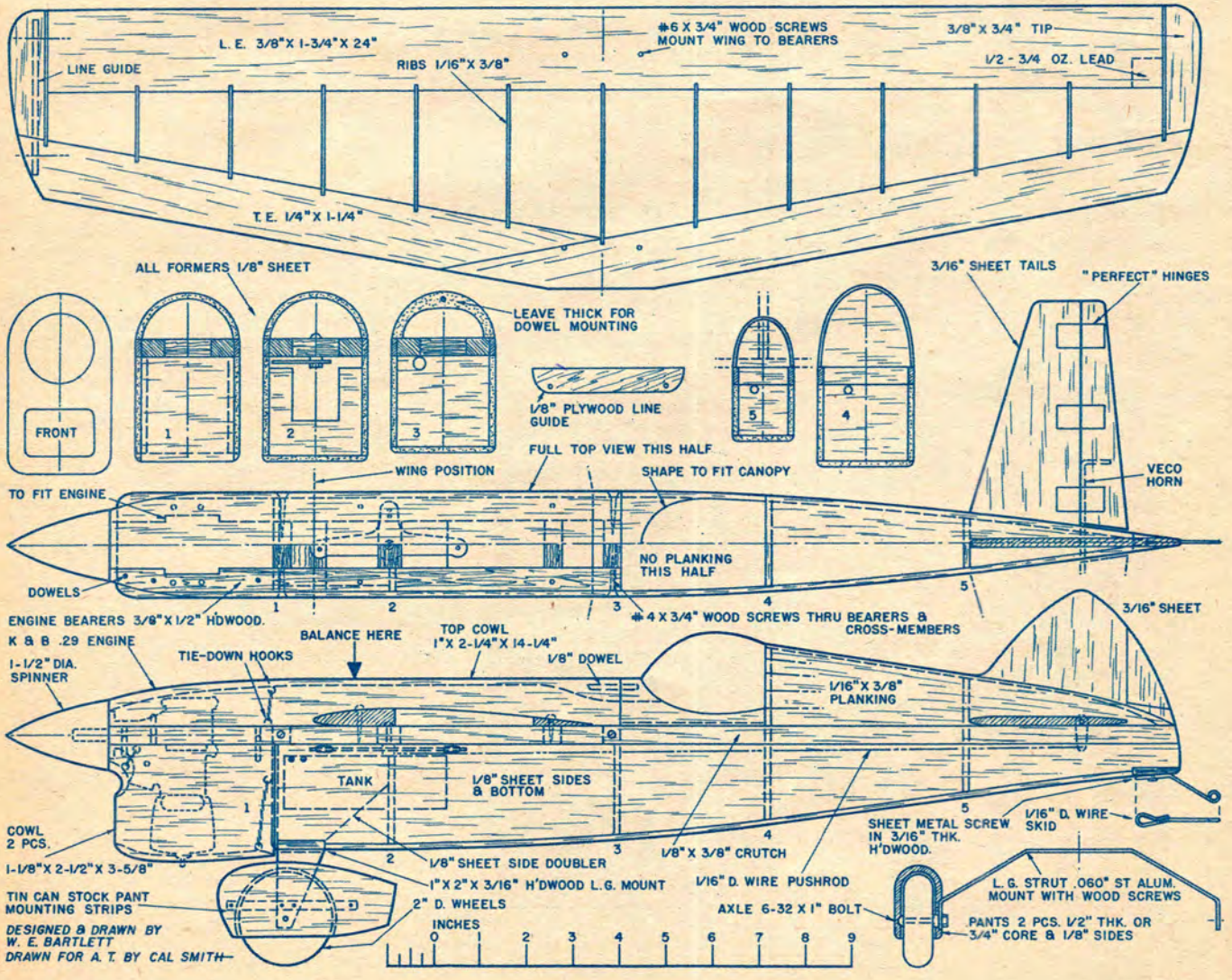
Fuselage	*Balsa*—2 pcs. 3/16x3⅜x24, Crutch; 2 pcs. ⅛x2x24, Formers, sides; 1 pc. ⅛x3x24, Firewall, bottom; 1 pc. 2¼x1x14¼, Top cowl; 2 pcs. 1⅛x3⅝x2½, Bottom cowl; 5 pcs. 1/16 x⅜x24, Turtle deck planking. *Hardwood*—1 pc. 2x1x3/16, Landing gear mount; 2 pcs. ⅜x½x13, Engine bearers; 1 pc. ½x1x3/16, Tail skid mount.
Wing and Tail	*Balsa*—1 pc. 3/16x3x24, Rudder/elevators; 1 pc. ⅜x24 l.e. stock, Leading edge; 2 pcs. ¼x18" t.e. stock, Trailing edge; 1 pc. ⅝x⅜ x8, Wing tips; 1 pc. 1/16x2x12, Wing ribs.
Landing Gear	*Balsa*—1 pc. ⅜x2x18, Wheel pants. *Dural*—1 pc. 1"x7½"x.060, Strut. *Wire*—1 pc. 1/16 dia.x5, Tail skid. 1 pr. 2" wheels. *Bolts*—2 ea. 6x32x3¾", Axles. *Nuts*—4 ea. 6x32, Axle retainers. *Metal screws*—5 ea. 6x¼", Attach gear and skid.
Miscellaneous	8—#4x¾ F.H. Wood Screws, Crutch. 4—#6x¾ F.H. Wood Screws, Wing mounting screws. 1—3" Bellcrank. 1—3/32" dia.x24" music wire, Shut-off and elevator push rods. 1—Veco control horn. 6—Perfect tape hinges. 1—D.E. or K & B fuel shut-off.

Remarkable feature of Bartlett's design is that the wing is demountable and can be quickly replaced. Wood screws hold easy-built wing firmly.




SILK OR PAPER COVERING
TRIM-FILM DECALS
PLASTIC BUBBLE CANOPY - 1/10 SCALE DUMMY PILOT
3/16" SHEET TAILS
REMOVABLE TAIL SKID
3" VECO BELLCRANK
DOWEL
" PERFECT" HINGES
FUEL-PROOF FINISH
K & B .29 ENGINE
VECO HORN
FUSELAGE CONSTRUCTION: 1/8" SHEET SIDES, FORMERS & BOTTOM 1" X 2-1/4" BLOCK COWL 3/8"X 1/2" HARDWOOD ENGINE BEARERS 1/16"X 3/8" TOP PLANKING
1-1/2" DIA. SPINNER
REMOVABLE BLOCK BALSA COWL
FUEL TANK
.060" ST ALUM. L. G. STRUT
SHEET SANDWICH PANTS
PANT RETAINERS - TIN CAN STOCK RIVETED TO L. G. LEG - WOOD SCREW THRU PANT SIDE
WING CONSTRUCTION: 3/8" X 1-3/4" L. E., TIPS 1/16" SHEET RIBS 1/4" X 1-1/4" T. E.
FLEX WIRE LEADS
CAL SMITH
2" DIA. WHEELS

Bart's complete instructions and full size drawings available from AT Plan Dept.—35¢


L. E. 3/8"X 1-3/4"X 24"
#6 X 3/4" WOOD SCREWS MOUNT WING TO BEARERS
3/8"X 3/4" TIP
LINE GUIDE
RIBS 1/16"X 3/8"
1/2 - 3/4 OZ. LEAD
T. E. 1/4"X 1-1/4"
ALL FORMERS 1/8" SHEET
3/16" SHEET TAILS
"PERFECT" HINGES
LEAVE THICK FOR DOWEL MOUNTING
FRONT
1/8" PLYWOOD LINE GUIDE
FULL TOP VIEW THIS HALF
WING POSITION
SHAPE TO FIT CANOPY
VECO HORN
TO FIT ENGINE
NO PLANKING THIS HALF
DOWELS
ENGINE BEARERS 3/8"X 1/2" HDWOOD.
#4 X 3/4" WOOD SCREWS THRU BEARERS & CROSS-MEMBERS
3/16" SHEET
K & B .29 ENGINE
BALANCE HERE
TOP COWL 1"X 2-1/4"X 14-1/4"
1-1/2" DIA. SPINNER
TIE-DOWN HOOKS
1/8" DOWEL
1/16"X 3/8" PLANKING
TANK
1/8" SHEET SIDES & BOTTOM
SHEET METAL SCREW IN 3/16" THK. H'DWOOD.
1/16" D. WIRE SKID
COWL 2 PCS. 1-1/8"X 2-1/2"X 3-5/8"
1/8" SHEET SIDE DOUBLER
1/8"X 3/8" CRUTCH
1"X 2"X 3/16" H'DWOOD L.G. MOUNT
1/16" D. WIRE PUSHROD
TIN CAN STOCK PANT MOUNTING STRIPS
2" D. WHEELS
AXLE 6-32 X 1" BOLT
L.G. STRUT .060" ST ALUM. MOUNT WITH WOOD SCREWS
PANTS 2 PCS. 1/2" THK. OR 3/4" CORE & 1/8" SIDES
DESIGNED & DRAWN BY W. E. BARTLETT
DRAWN FOR A. T. BY CAL SMITH
INCHES
0 1 2 3 4 5 6 7 8 9

"Mac.II" Hi-Power 5-Watt Transmitter

By HOWARD G. McENTEE, W2SI

Tried everything in radio control? Are you the tinkering type? Any of your models gone AWOL—out of sight, out of control? Full data on "AT" Plan 553.

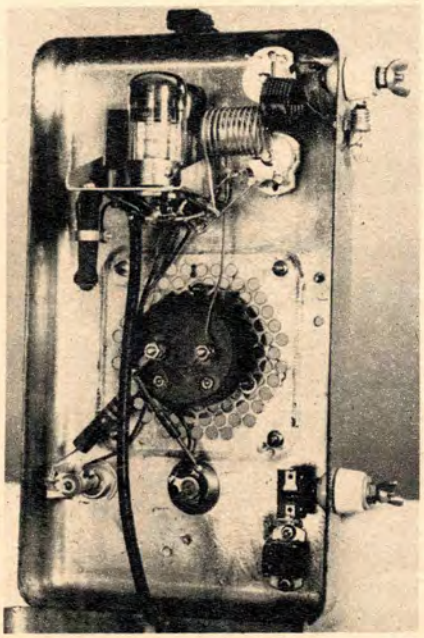
■ "I want a transmitter that operates at the full five watts the F.C.C. allows," stated our young friend. We tried to point out that he had been doing fine with the A.T. Annual 1S4 transmitter, which has a modest 1.5 W. going into the tube, and that he had never flown out of range when using it. But to no avail; he was an expert now, and wanted a transmitter fitting his position.

While it is a known fact that even a half watt input will give perfectly reliable operation, *if* transmitter and receiver are tuned properly, and all the batteries are in good shape, we have to admit that higher power into the transmitter will allow a bit of leeway throughout the system. So we set about to see what could be done.

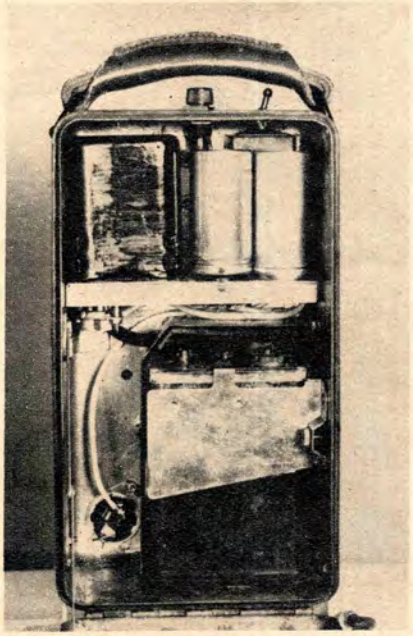
Our young hotshot did not want to use a rig that was tied to the car battery, for most of the spots where he flies can't be reached by car—you park at the fence and walk another several hundred yards. A self-contained rig it had to be then, but five watts input meant we had to go to 180 V. for the B battery. A little arithmetic showed that five of the normal size 45 V. batteries used in most R/C transmitters came to at least $7.00, with the A battery at 80 cents or more added to that. A really active flyer, our friend would go through a set quite fast, especially since he is a proportional control addict.

He uses—as do most of the other local flyers—a war surplus 2 V. storage cell for glow engine starting. Now if we could only tie onto that to get our transmitter power. . . . To make a long tale short, we could. Another surplus item, a PE-157 power unit, was discovered, which proved to be a perfect answer. It is fitted in a sturdy steel case measuring 5½" x 6" x 11" high. The one we used comes complete with a vibrator. This power supply has a lot of parts that are not needed for our purposes, so the first job is to take out the chassis and remove from it the parts that will be used. There is a circuit diagram on the inside of the cover, so you can check up on these parts. The ones needed for the R/C transmitter are R3, R4, R5, VB8, T3, C5, C10, CH1, Rect. 1 and Rect. 2, J2, PL-1 and SO-1. All the other parts may be set aside for other uses.

The storage cell is held in a rubber shock absorber, with a metal clamp over it. A little rubber tube slips over the cell vent to carry all fumes to the outside of the case. Since the original chassis forms part of the battery-holding arrangement, the necessary portion was hacksawed off and the remainder discarded. A little aluminum chassis was bent up from 1/16" thick sheet aluminum to carry the power supply parts. It is held in the case with four



You're looking at a surplus PE-157 power unit converted to 27.255 by Mr. R/C himself.



Power half of the "Mac II" above. Case hinges on bottom. Built-in current supply for glow plug!

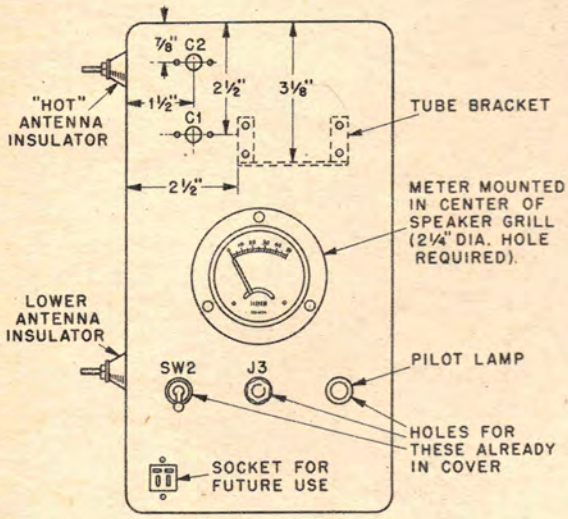
sheet metal screws.

As the cell was also to be used for engine starting, a heavy-duty two-prong socket was installed in the large hole in the rear of the case; the starter leads terminate in an ordinary household utility plug.

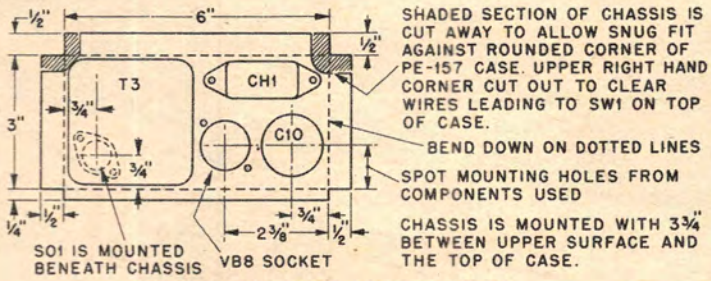
Having settled the power supply, attention was next turned to the case itself. It has a heavy hinge at the bottom which does not allow it to sit squarely on any flat surface, so side plates and a new base were made from 3/32" aluminum. The base plate is 8" square and increases the capacity of the transmitter to ground, making it easier to load the antenna. It also makes the outfit more stable when the antenna is extended. The case was in good shape mechanically, but the paint was shabby, so it was removed and the case repainted a brilliant orange.

When questioned on this wild color, we always point to the time we saw a spectator stumble over an R/C transmitter sitting in the grass with the antenna down; the guy said he didn't see it. No one can say that about *this* outfit!

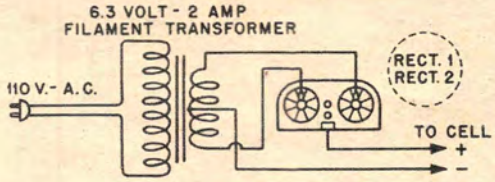
Next item (*Continued on page* 70)



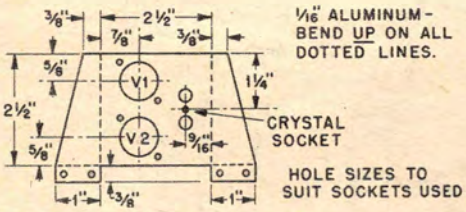
TRANSMITTER FRONT COVER LAYOUT



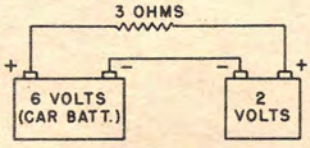
POWER SUPPLY CHASSIS LAYOUT



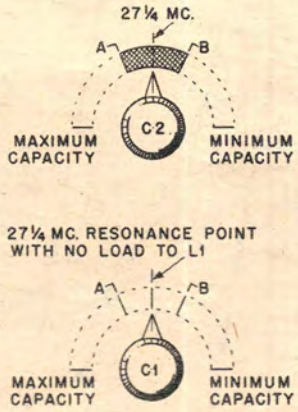
CHARGING FROM POWER LINE



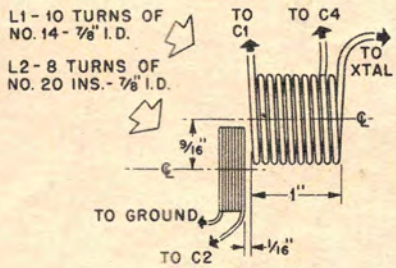
TUBE BRACKET LAYOUT



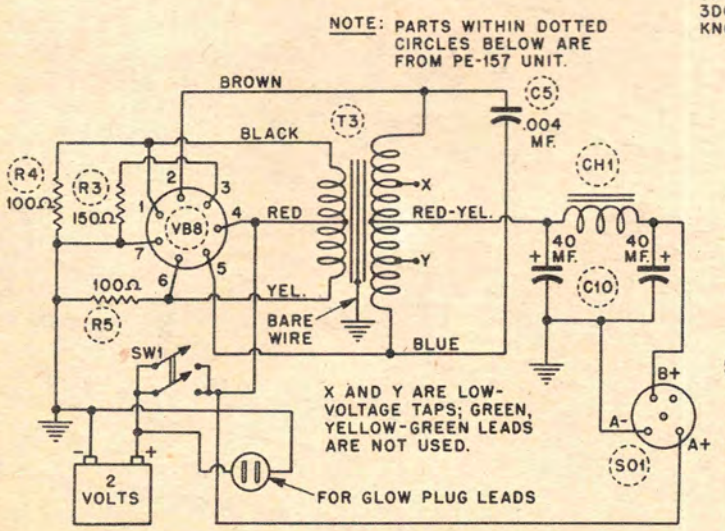
CHARGING FROM CAR BATTERY



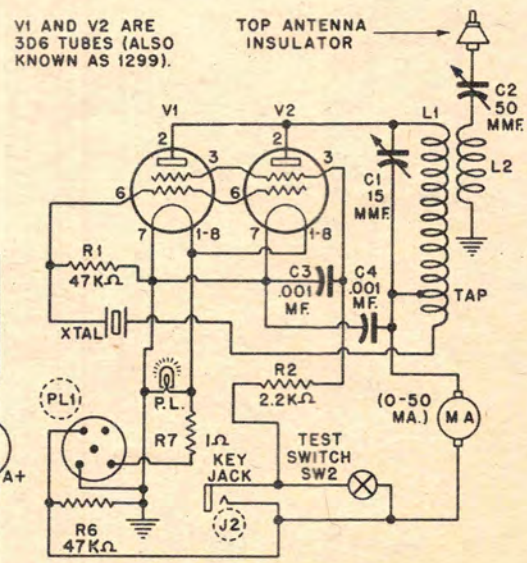
CONDENSER TUNING



L_1 AND L_2 DETAILS



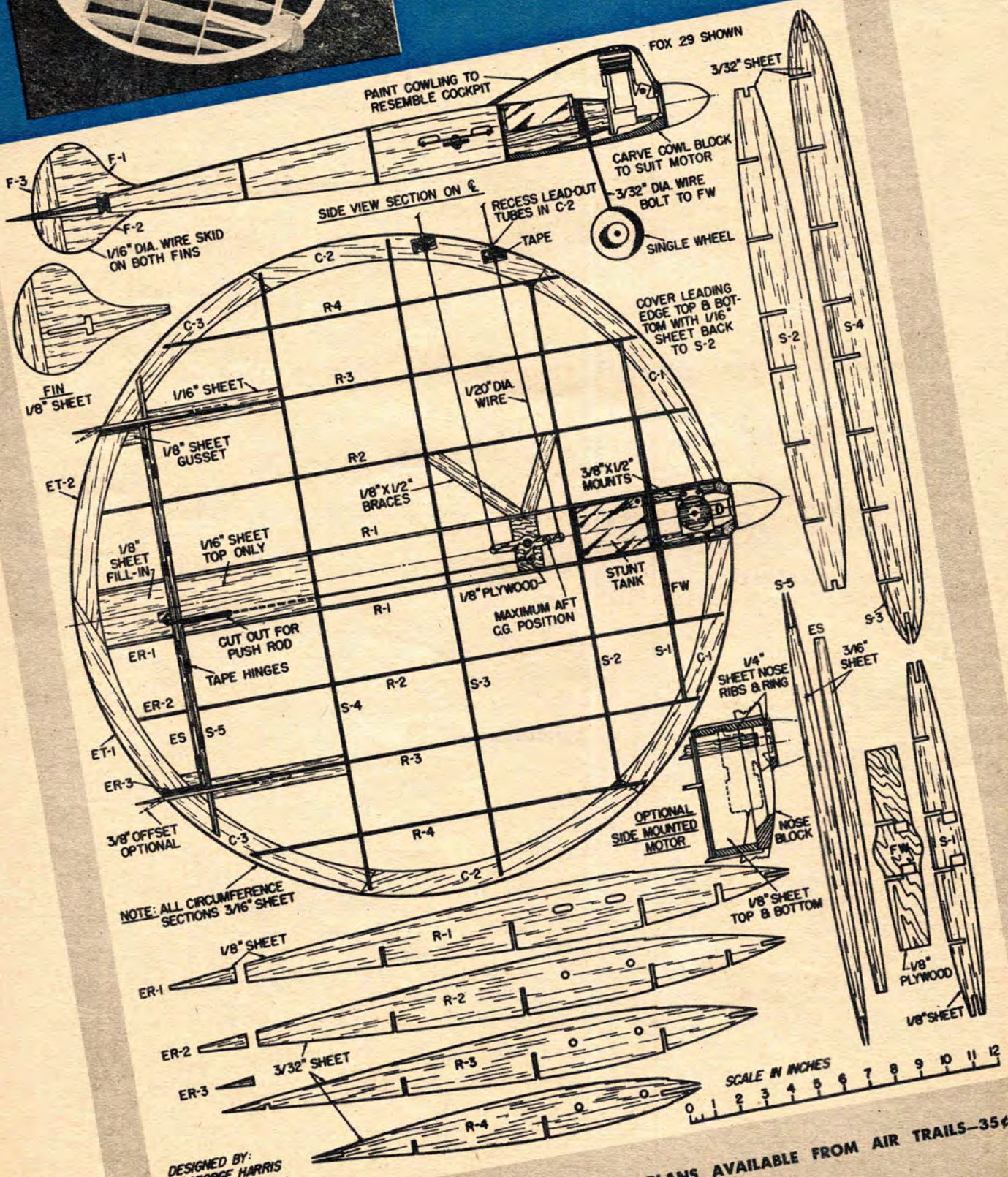
POWER SUPPLY CIRCUIT



TRANSMITTER CIRCUIT

Sassy Saucer

By GEORGE P. HARRIS



DESIGNED BY: GEORGE HARRIS
PLANS TRACED BY: AUBREY KOCHMAN

SIZE PLANS AVAILABLE FROM AIR TRAILS—35¢

Have a hankering to do 12 foot square loops? This pixilated plate circulates at 75 mph!

"G.P." is a design draftsman in San Diego, Calif. At 25 he's had quite a career in aviation: worked on the Comet jet airliner in its experimental phases, was with de Havilland for 6 years. Hobbies include photography and designing full-size Fiberglas sports car. Likes stunt, R/C and Jetex jobs; married, wife's name is Yvonne; has 150 hours dual in lightplanes; started modeling in '39. Member S. D. Airliners and Hutchinson, Kans., Balsa Butchers.

■ The flying saucer is by no means a new idea although very few control line models of this type have been successful to date. The circular wing form is recognized as being very efficient in that the entire surface contributes to the lift and such unnecessary items as the fuselage and tail are eliminated, thus reducing weight and drag.

Our *Sassy Saucer* is the last of a series of circular wing models, the first of which was built in 1946 in England after the designer witnessed a demonstration of a flying saucer at a model meet. The first few models showed promising signs of being highly maneuverable but were all slightly unstable in certain ways. Further experimenting with airfoils and C.G. positions eliminated the stability problem and resulted in a very successful stunt model, a number of which were built and flown by modelers on the West Coast. This particular design was also in action at the 1952 Nationals when no less than five were flown in one circle. (*And stole the show!*—EDITOR'S NOTE.) After obtaining a satisfactory performance, attempts were now made to improve the appearance of the model and to clean up a few constructional details. The final result was *Sassy Saucer*.

The model is stable at all speeds and is very easy to fly, in fact the designer's wife practiced with one while learning to fly.

Due to the absence of a fuselage or other encumbrances the finished ship is exceptionally light for its size and is easily overpowered. A good .19 will pull it through the full stunt pattern with ease, a .29 makes the ideal combination, while a .35 turns the ship into a tethered firecracker. Most of the test models were flown with a Fox .29 up front and circulated at about 75 mph.

The main point to remember in building *Sassy* is that the C.G. should *not* be any further *aft* than the position shown on the plans or the model will make like a wildcat. The forward position is not critical and has varied as much as two inches in some of the models. The further aft the C.G. is located the more sensitive the model will be, so the position depends on your flying ability.

The construction is simple and rugged enough to withstand plenty of rough treatment. All the ribs and spars are interlocking and if the slots are cut true the finished structure will automatically be aligned and virtually warp-proof.

The first step is to cut out all the ribs and spars and slot them together in their correct positions as shown on the plans. After cementing all joints carefully, the framework may be laid aside while the circumference sections are cut from 3/16" sheet balsa. The circumference sections are then fitted into place and aligned to form a perfect circle, the elevator being built in place along with the main structure if desired.

The motor mounts are firmly cemented to the ribs R1 and all surrounding structure, care being taken to use a good penetrating cement at this point. Next the bellcrank mounting plate may be added together with the ⅛" x ½" bracing strips. These bracing strips have saved the day on many occasions as it is highly embarrassing to try and loop the control system while the model heads into the wild blue yonder.

The fuel tank is added along with the landing gear which is bolted or bound to the plywood spar FW. All of the test models were fitted with a single wheel gear or with no gear at all, although a conventional two-wheel gear may be used if preferred. However, *S.S.* takes off so fast that any extra wheels are a sheer waste.

The leading edge should now be sheeted and the various sections sheeted in where indicated on the plans. When installing the cap strips around the fins, care should be taken to make the slots a good fit as the fins are not added until after covering.

The entire structure is now sanded, the circumference edges rounded and the spar S5 and the elevator spar ES also rounded. The type of elevator hinges shown will hold the elevator firmly without play and yet allow free movement for the full range of control which should be about 40 deg. up and down. Excessive movement of the elevator produces unusual results such as the model stopping in midair although this will not occur in normal stunting.

The motor is installed and the cowling carved from block or built up as preferred. The designer is experimenting with molded Fiberglas cowlings which may prove desirable.

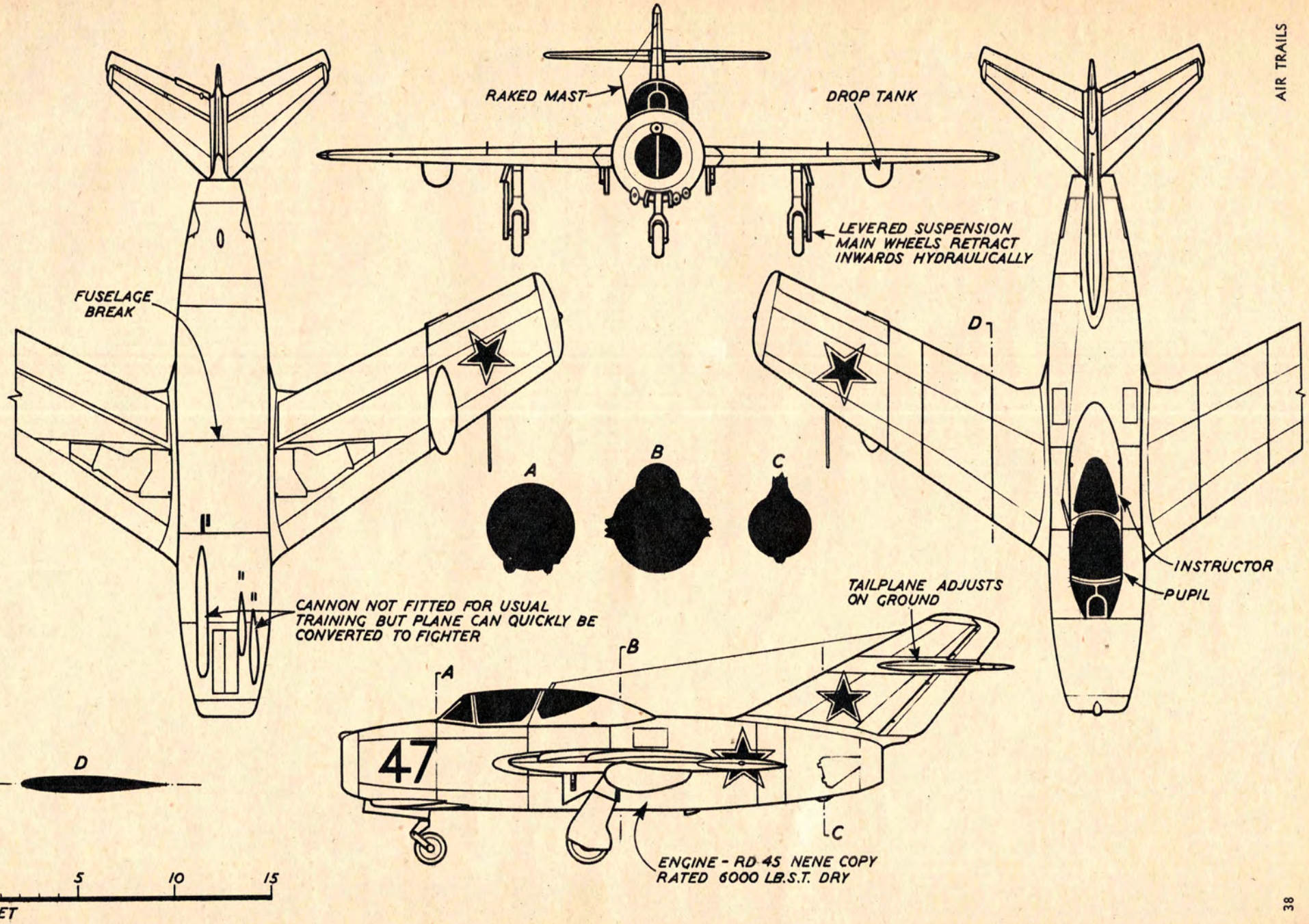
Covering the model is not as difficult as it looks. Use two layers of heavy paper or one of silk, the latter being preferable; apply wet. A complete side may be covered in one piece by first doping the covering along the straight edge of the leading edge sheeting. Next dope the covering to the rest of the sheeting; the curves are large enough to allow the wrinkles to be lost without much trouble. The rest of the structure is covered by working back along the ribs R-1 and pulling out to the sides to remove wrinkles. Overlap all edges.

After doping to the required consistency, the covering over the fin slots may be cut out and the fin parts F-1 and F-2 pushed into place together with plenty of cement. Next add the remaining fin part F-3 and fit the wire skids in place. The fins should be covered with silk for added strength.

Painting and flying details may be found on "AT" full-size plans.

Bill of Materials

8 sheets 3/32"x3"x36" balsa. 3 sheets 1/16" x3"x36" balsa. 2 sheets 3/16"x3"x36" balsa. 2 sheets ⅛"x3"x36". 1 ⅜"x½"x12" hardwood (motor mounts). 1 ⅛"x3"x10" plywood. 1 3/32" dia.x36" piano wire. 1 1/20" dia.x36" piano wire. 1 2¼" dia. wheel. 12 ins. tape for hinges. 1 2"x4"x6" block balsa for cowling. 1 ½ ins. 1/16" dia. alum. tube for lead-out guides. 8 ins. 1/16" dia. piano wire for fin skids.



RUSSIAN U-MiG-15 Two-seat Trainer

DRAWN BY ROY CROSS

the Liberty Belle

By DICK SCHUMACHER, Director of 1952 National Radio Control Event

Slick little Half-A Radio Control cutie by a top U. S. designer-flyer

■ After years of hard and continuous work, the Radio Control Committee of your A.M.A. was able to announce last year their goal of a "license free" band on 27¼ mc. The *Liberty Belle* was designed in celebration of the event.

Based on previous experience with small R/C, ranging from the well-known "Little Ship" at 48 inches with Cub .09 for power to the super-small "33" at 33″ span with a .045 Spitfire, it was decided to design a Half to Three-quarter-A ship. The design was evolved with the actual powerplant choice left until the ship was completed and the weights checked. Choice of size was a 42″ span, as this gave a good area for a variety of engine sizes and weight variation tolerances.

The ship was completed with the amazingly low weight of 16 oz., no particular attempt being made to save weight other than a careful selection of wood. With this low weight the selection of a powerplant became the popular Wasp which brought the total weight ready to fly at slightly over 17 oz. This weight could have been shaved by using the new smaller batteries instead of the usual 412 "B's" and Half-A's for servo power, but the ship has proven so lively even with the natural increase of weight with age that it wasn't necessary.

I would like to emphasize the point of wood selection. A little care and time can "earn" you several ounces. Extensive use of sheet wood is made in the design as it is just the ticket for strong and rapid construction, but it does require wood judgment for maximum efficiency. Weight is of little importance if you are willing to go to a Three-quarter-A engine like the Royal Spitfire or the Cub .074. The wing design has flown over ½ lb. more with such engines; however, if you are like the writer you will be striving for a true Half-A R/C and won't want to take the easy way out.

Aerodynamically the plane differs somewhat from my previous designs. The principal change is that the stabilizer is set above the turbulent wake of the wing. This was done to raise the stab directly into the prop slipsteam in an effort to lower the required "downthrust" and to keep the nose down under high power. As a by-product the wing is set at a rather unusual high angle

21
7.5
105
147
157.5

42
7.5
210
294
315.0

16

It's a cinch to build the Liberty Belle using full size plans

of incidence to the fuselage, which in turn means a relatively high ground angle and improved take-off characteristics. By using a deep forebody and subrudder the C.L.A. is kept low enough so there is no overbanking tendency in turn entries.

The resulting flight characteristics are all that can be desired. Despite the light wing loading the ship shows a good turn of speed and the steadiness in rough air would do a large ship proud. The flight pattern is typically "small ship" and the *Belle* will fly in confined areas. This was proven at the 1952 Nationals where it was flown almost an entire flight within the area bounded by the spot landing circle. One noticeable feature caused by the high incidence angle is that the ship appears to be nose down in flight. The effect is a little startling until you realize that it is not actually underelevated.

The natural choice of receiver was the R.K. 61 because of its light weight. A Berkeley D. E. receiver which has a well-earned reputation for its ease of assembly and operation was used. The dust core tuning does a lot to stabilize the operation and improve reliability of the set. The manufacturer's instructions were followed closely.

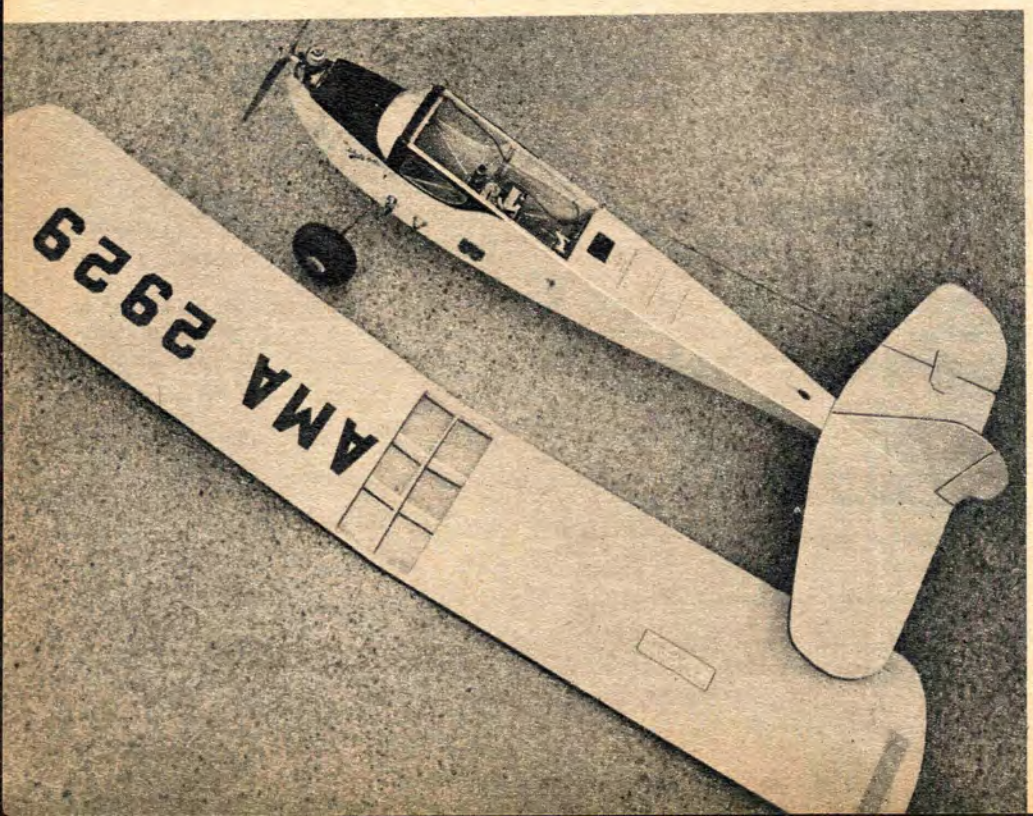
Control operation is supplied by the Bonner Compound escapement. These escapements are outstanding for their high quality of workmanship and, of course, offer a great amount of control for the weight. Besides the simple 1-2 signaling sequence, the independent throttle control feature makes Bonner about top dog in the escapement business today. While it is intended that two-speed be used in the *Belle* and although both the two needle valve setup for the motor and installation setups for the bleeder valve were tried, to date they have not been installed due to the press of time. However, the ship has been flown with two additional ounces of weight with a performance margin that makes the entire setup only a case of getting the time to do the installation work. The proposed installation is indicated on the plans.

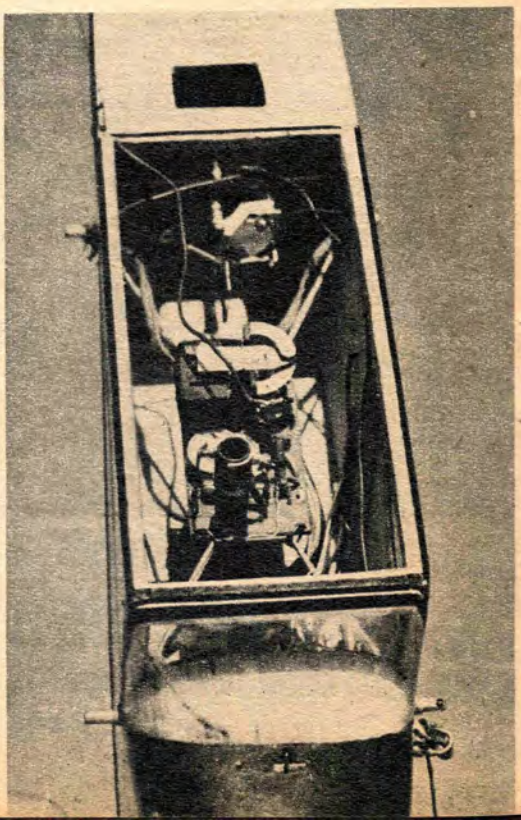
With the C. G. in the position shown and a careful check on the incidence and thrust settings, the ship is ready for flight. Test-glide several times, checking closely for any turn tendencies. These must be removed before the first powered flights.

For the first flight by all means have the receiver installed and operating. An R/C must be trimmed for straight flight. Any test flying with circular flight is a waste of time. After first flight you can work on the fine trim details. The ship is trimmed to fly straight power off, and any turn under power is corrected with thrust adjustments.

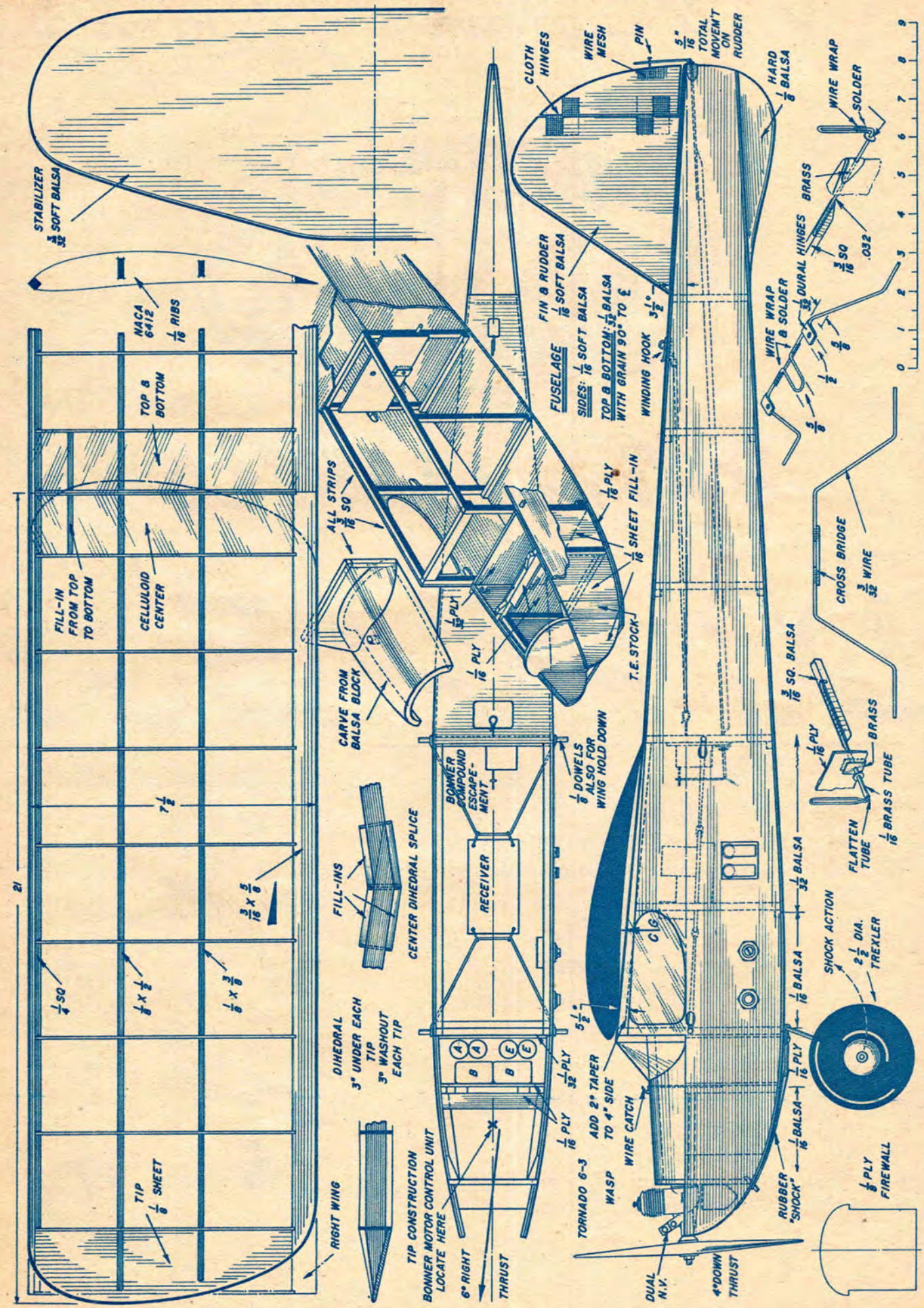
Editor's Note: So much interest was shown in this small R/C model at the National Meet we decided to run it even though the busy designer has had no opportunity to check it out with 2-speed motor control. His reputation in the field is more than sufficient to permit this change in policy.

Why build a big model when a small one will do? Events Director Schumacher, formerly a noted rubber modeler and member of the U.S. Wakefield Team, provided a good answer when he flew L.B. during last Nationals in winds which grounded all other (and larger) R/C craft.





Send 35c to Air Trails Plan Department for the working drawings



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TESTORS

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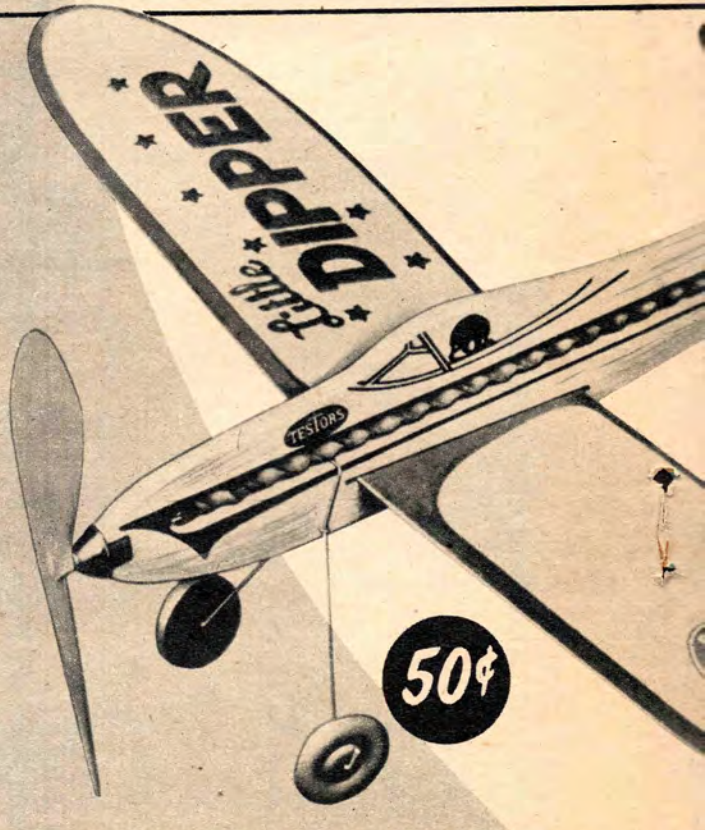
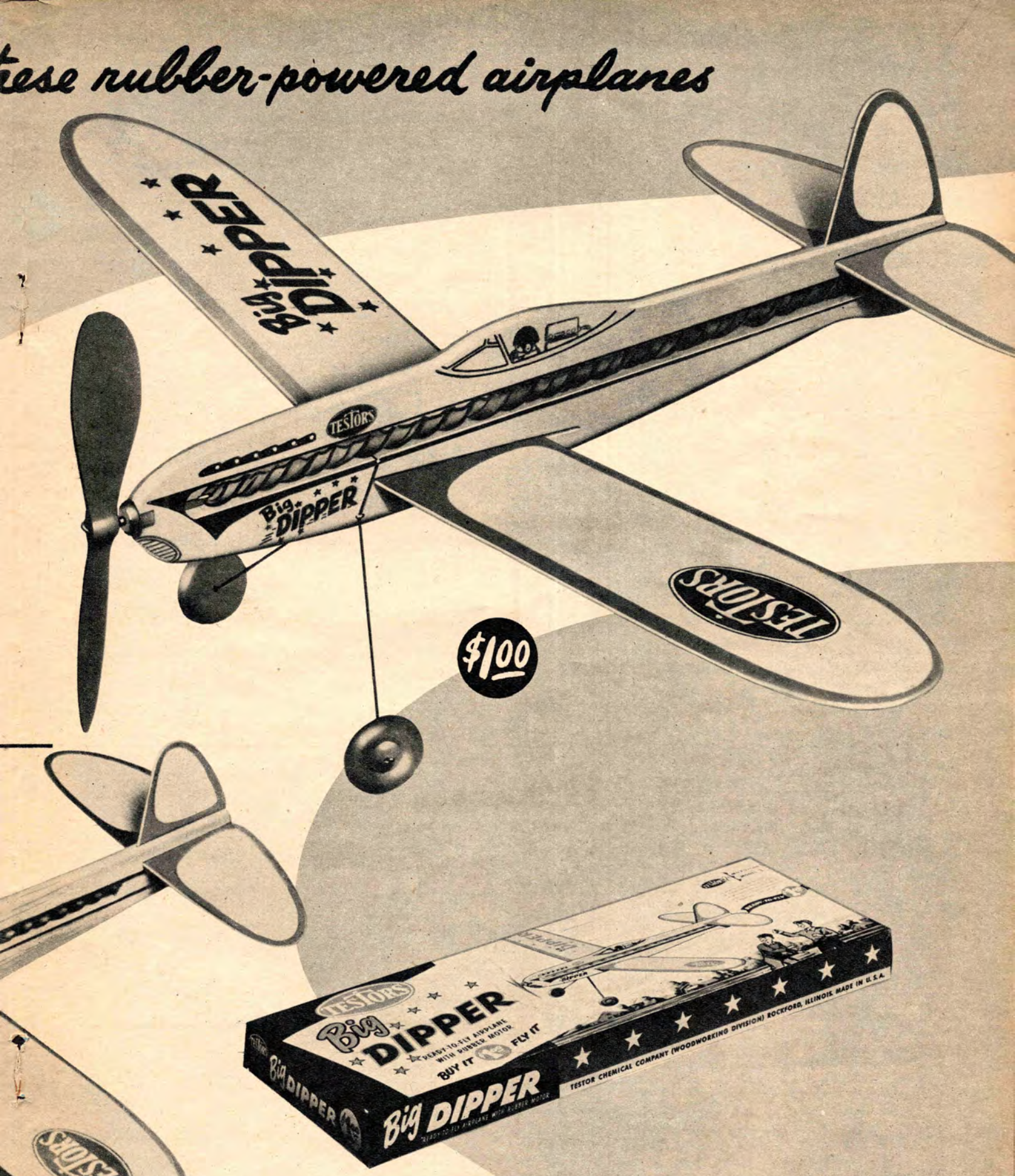
Best rubber-powered performers you ever saw in this price range . . . and they'll be favorites with all your flying pals, too! Have profile fuselage with rounded top and bottom, realistic canopy design, plastic prop and nose piece, 2-color printed trim, wire landing gear with free-rolling wheels. Sturdy construction . . . all choice Testors balsa. Rubber motors quickly and easily replaceable. Individually boxed; complete with flight instructions. Get set for hours of flying fun . . . start your Dipper fleet today!

★ Big Dipper ($1.00): wingspan — 21"; overall length — 16"
★ Little Dipper (50c): wingspan — 15"; overall length — 11"

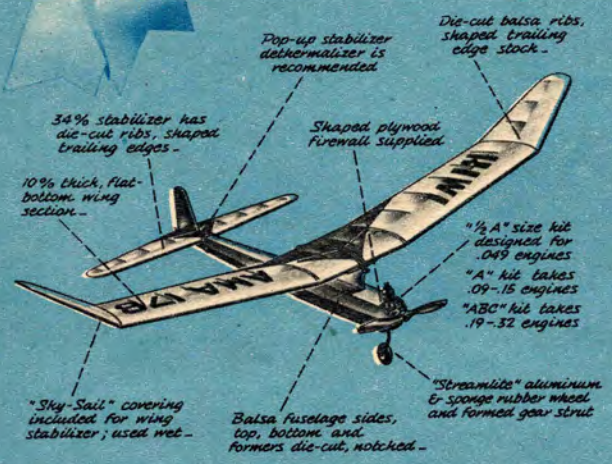


TESTOR CHEMICAL COMPANY • R

tese rubber-powered airplanes



ROCKFORD, ILLINOIS.


Die-cut balsa ribs, shaped trailing edge stock –
Pop-up stabilizer dethermalizer is recommended
34% stabilizer has die-cut ribs, shaped trailing edges –
Shaped plywood firewall supplied
10% thick, flat-bottom wing section –
"½ A" size kit designed for .049 engines
"A" kit takes .09-.15 engines
"ABC" kit takes .19-.32 engines
"Sky-Sail" covering included for wing stabilizer; used wet –
Balsa fuselage sides, top, bottom and formers die-cut, notched –
"Streamlite" aluminum & sponge rubber wheel and formed gear strut

K&B Kits Give Wings to the Kiwi

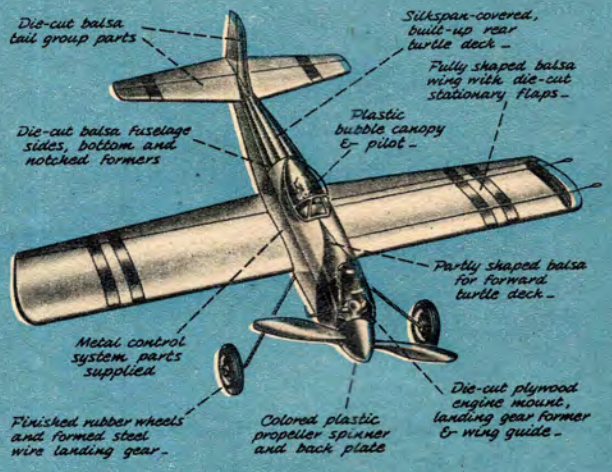
Matched Series of F/Fers by "Zeek" Mahieu

■ Penaud, the famous Frenchman who flew the first rubber-powered model, would be proud of his replanted modern counterpart, H. Llewelyn Mahieu, 26, designer of K&B's new series of free flight kits, the Flying Kiwis. Reason is that the three models require little or no down thrust. Mahieu is a French-Belgian name and that may explain Lew's easy-going nature, but among modelers he's best known for his "Zeek" designs and for that early successful speed job—which he did with Dick Rigney—the Circulator.

The Kiwis are unique for several reasons: they were designed around specific wood sizes, they are simple to adjust, and the man who did the designing supervises the manufacturing. We asked Mr. Mahieu, who can look back on 18 years of model building experience with the last five spent in all phases of kit and engine manufacturing, how come an engine concern wanted to monkey around with balsa wood, paper, wire bending and the like. "Well," said the K&B sales manager, "we wanted to see some kits available that would be perfectly matched to our engines. Not that you can't fly these Kiwis successfully with other powerplants—because you can—but for some real duration surprises we think the modeler will like these three model-motor combination set-ups which we have created." Incidentally, the smallest will take any A/2 engine out.

The firewall has been saw-cut for squareness of edge since that helps in the fuselage construction. In the Half-A version the pylon is 3/16" sheet, in the "A" it's ¼" sheet and for the A-B-C class you sandwich the ¼" between ⅛" sheets. Wing panels are built separately and flat, then cemented together at the proper angles to produce the polyhedral.

Mahieu is a strong advocate of the cover-while-wet school. He tells the builder to cut paper panels to slight oversize, dampen the pieces with a Windex-type water sprayer, blot paper, lay in position on framework, then apply adhesive and work it into the wood through the paper.


Die-cut balsa tail group parts
Silkspan-covered, built-up rear turtle deck –
Fully shaped balsa wing with die-cut stationary flaps –
Plastic bubble canopy & pilot –
Die-cut balsa fuselage sides, bottom and notched formers
Partly shaped balsa for forward turtle deck –
Metal control system parts supplied
Die-cut plywood engine mount, landing gear former & wing guide –
Finished rubber wheels and formed steel wire landing gear –
Colored plastic propeller spinner and back plate

Enterprise Reveals Slick Trick

Latest Brofman Control Line is Semi-Scale Stunter

■ Following somewhat along the lines of the Zenith, an earlier design, the Slick Trick is just that for the purchaser, for he saves considerable money on this one. Since the fuselage is not a hollowed-out balsa block, the manufacturer, Enterprise Model Aircraft & Supply Co. (Mineola, N. Y.) can market this new design at quite a saving. Intended for engines from .039 to .099 cu. in., the Slick Trick sells for $1.95. The kit is very complete, all hardware being included.

For a little more work than on the previous EMA&SC jobs, the builder gets a lighter model. The fuselage is built-up, with die-cut sides and bottom, and eight formers. The latter key into slots cut in the sheet sides, so alignment is assured. The forward former is of plywood, and may be used as a radial engine mount. Hardwood strips are furnished to mount beam-type engines. To the rear of the cockpit, the fuselage top is stringered, and a strip of paper comes in the kit to cover this area. Cockpit sides are sheet balsa, while forward of the cockpit a solid balsa block adds strength. This must be cut out to fit the engine used. Former No. 2, also of ply, served as the attachment point for the ready-formed landing gear wire. Wheels are 1¼" solid rubber with metal bushings. The cockpit is finished off with a plastic pilot and a strong molded canopy.

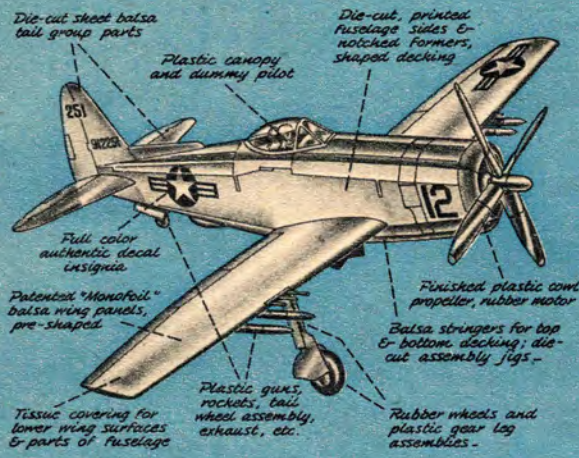
The wing is a solid shaped piece of balsa, the airfoil being the flat bottom style. Wing area is increased by the addition of sheet balsa fixed flaps at the trailing edges; total area is 60 sq. in. The aluminum bellcrank is bolted to the center of the wing; a ply line guide is used at the wing tip.

The tail surfaces are of 1/16" sheet balsa. They are a bit unusual in that the rudder does not extend below the elevator; the latter has no V-cut, therefore.

There is a large space back of the firewall for tank installation. A two-piece plastic spinner—like the other plastic parts, molded on Enterprise's own machines—is a feature of the kit.

The plan carries clear exploded assembly drawings.

RIBBON MODELS


Die-cut sheet balsa tail group parts
Plastic canopy and dummy pilot
Die-cut, printed fuselage sides & notched formers, shaped decking
Full color authentic decal insignia
Patented "Monofoil" balsa wing panels, pre-shaped
Finished plastic cowl, propeller, rubber motor
Balsa stringers for top & bottom decking; die-cut assembly jigs.
Plastic guns, rockets, tail wheel assembly, exhaust, etc.
Tissue covering for lower wing surfaces & parts of fuselage
Rubber wheels and plastic gear leg assemblies.

Monogram Revives W. W. II Fighter

P-47N Thunderbolt in Speedee-Bilt Series

■ The famous line of Speedee-Bilt kits by Monogram Models Inc. (Chicago, Ill.) has been expanded with the addition of two new designs; there are now a total of seventeen in the series, the new ones being the Grumman F9F Panther and the renowned Republic Thunderbolt. The latter, our concern at the moment, is a copy of the P47N, the last of this illustrious line. These two new kits in the Monogram series sell for $1.

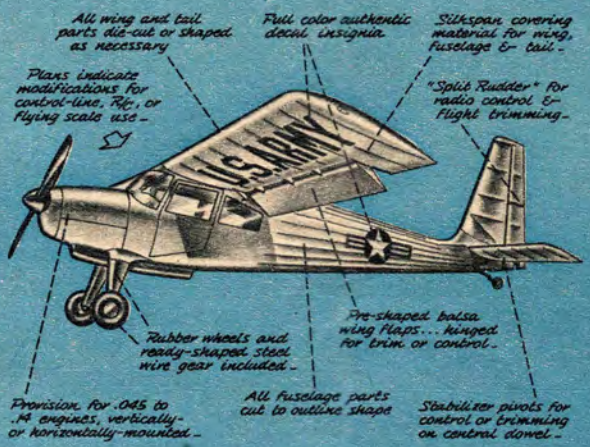
This T-bolt is a large model, with a span of about 15", and a length of 12" from spinner to rudder. Construction is similar to that of others in the line; the fuselage is built up from a foundation of sheet balsa sides held together with several formers. These parts are keyed together to assure true alignment, and with the addition of the curved and hollowed cowl pieces, the assembly becomes quite rigid. This balsa cowling extends from cockpit to nose, and there is another short section to the rear of the cockpit. From there aft, 1/16" square stringers are used, to be covered later with paper.

The usual very accurate Monogram plastic parts are naturally featured in this kit; several of these go into the fuselage assembly, including the nose block with its simulated radial engine, and an exhaust stack for the rear underside of the fuselage.

The wings are of Monofoil design with upperside carved to airfoil shape, and the underside hollowed. Added trailing edges of 1/16" sheet balsa widen the wing, so that the root chord is a full 3".

Tail surfaces of die-cut sheet, and in fact most of the sheet balsa parts are colored silver gray, to simulate the aluminum finish of the original ship. Many other plastic parts, including prop, landing gear legs, rockets and machine guns, and of course, a clear canopy, lend a professional touch to the completed ship.

The plans are of the step-by-step type; twenty of these steps, each thoroughly explained, bring the builder up to the flying stage. To make testing more certain, the kit contains an added folder explaining how to achieve proper balance, test gliding, power flight and so on.


All wing and tail parts die-cut or shaped as necessary
Full color authentic decal insignia
Silkspan covering material for wing, fuselage & tail.
Plans indicate modifications for control-line, R/C, or flying scale use.
"Split Rudder" for radio control & flight trimming.
U.S. ARMY
Pre-shaped balsa wing flaps... hinged for trim or control.
Rubber wheels and ready-shaped steel wire gear included.
Provision for .045 to .14 engines, vertically- or horizontally-mounted.
All fuselage parts cut to outline shape
Stabilizer pivots for control or trimming on central dowel.

Berkeley Kits YL-24 as 3-Way Deal

Helioplane Flying Scale for R/C, C/L or F/F

■ This model, a blood-brother to the plane that startled the aviation world a few years back with its ability to take off from a tennis court, duplicates a more advanced airplane worked out for Army liaison use, and designated the YL-24. The ship has ideal characteristics for scale model flying, since it has considerable downthrust, strut-free wings, and a unique wing flap arrangement that may be made workable, if desired. Actually a three-way design, the Helioplane model may be flown free flight, control line, or with radio control; details for all these uses are shown on the extensive plans.

A product of Berkeley Models, Inc. (West Hempstead, N. Y.), the model was designed by Henry Struck, and the kit retails for $3.95; the finished job spans 39", with 230 sq. in. area.

The fuselage is of former and stringer construction aft of the cabin, for light weight. The cabin itself is suitably beefed up to protect a radio installation, and is balsa covered. Actual cabin area is quite sufficient for a compact R/C installation, and the plans show in detail how the Super-Aerotrol equipment may be fitted in. The front of the cabin is a ply former, used as an attachment point for the shaped landing gear wire. Then comes a compartment for the fuel tank, with a ply firewall in front of this, upon which the engine is fastened. The powerplant may be installed either vertical or horizontal; plans show an OK Cub .09 mounted flat, and also a Wasp .049 in the more conventional upright layout.

Tail surfaces are conventional in construction, but the entire symmetrical stab is pivoted, just as in the big plane. The wings are made in one piece, attached by rubber bands. The unusual feature here is the flaps that extend for about three quarters of the span. A suggested linkage is given for using a single R/C escapement to operate both rudder and flaps; flap coupling disengages automatically should the wing be knocked off in a hard landing.

Engines from .039 to .065 are suggested for free flight, from .074 to .099 for R/C, and up to .14 with U-control.

THE BIG MEETS IN REVIEW:

Out to Launch

Why it pays to have an A.M.A. license and that insurance coverage! Edwin Howe's "Big Stare" gives the big scare to a new Olds. Moral: doan park doawn wind, dahlings . . . Pylon didn't even break; is that T. Enticknap "retrieving?"

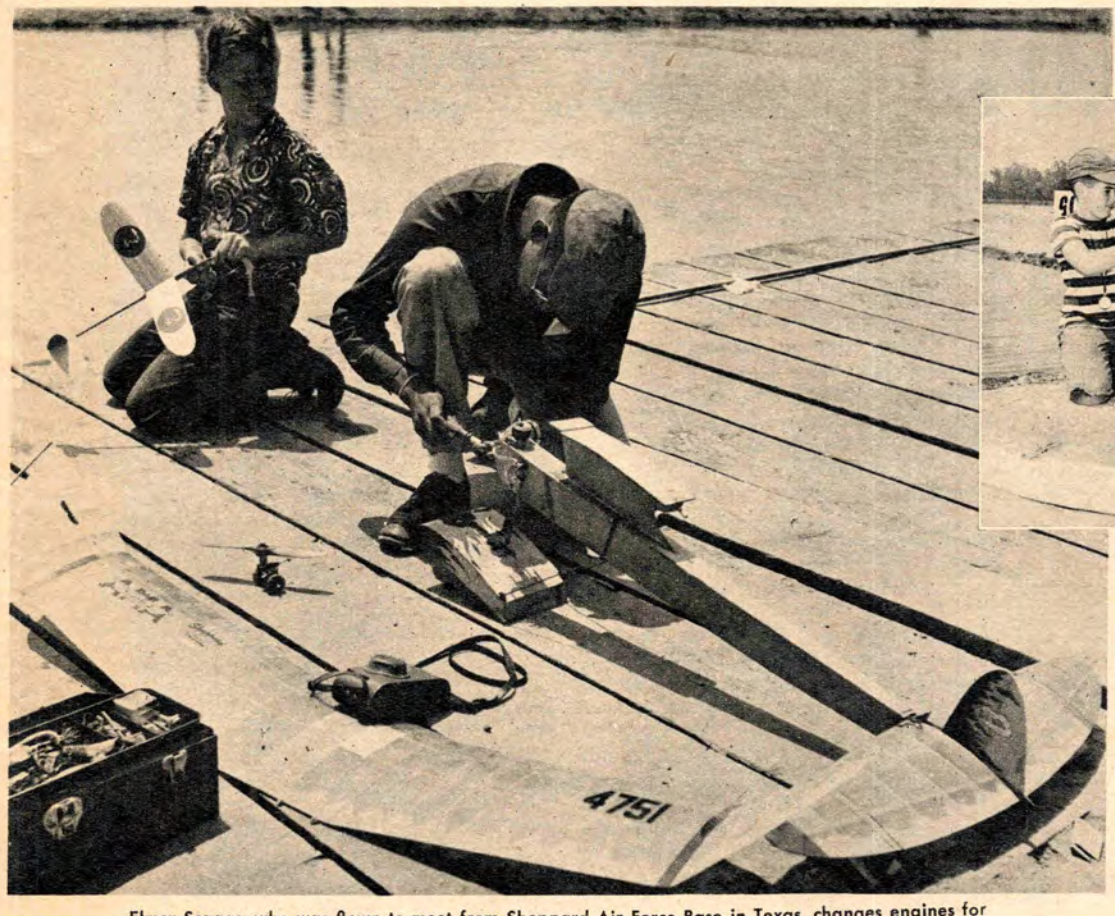
Ed Rominger, Wally Short and #2114 get off . . .

What is so rare as a day in July when all the experts go out to engage in their annual dunking spree? Last season at the Los Alamitos Nationals more and better flying was seen than ever before—but still a lot of would-be off-water fly wagons stubbed their toes on the rippling wave. Flying conditions, thanks to the Navy who bulldozed out a special pond for the hydro-happy trophy hounds, were almost ideal. Open winner Scaggs and Junior champ Tune are shown here. Senior class cup snarer was Bob (brother of R/C Dick) Gelvin of Topeka, Kans. (Photos by U. S. Navy, H. A. Thomas, F. Takagi.)

This is 12-year-old Bruce Tune (left) from Los Angeles with his Half-A Torp-powered "Smarty" kit model. Bruce took first in junior R.O.W. with 18:38.4; this was 2nd highest time of the meet and constituted new A.M.A. off-water national duration record for model flyers under 16 years of age, sez Academy.

How not to fly, or even the experts have bad days, too. This study is entitled "Bottoms Up." Model by John Drobshoff.

Now this is more like it: "Suspended Animation" by Tosh Matsuda. This is a sleek "Zeek" converted to hydro flying. The covering and finish on this job was hot.

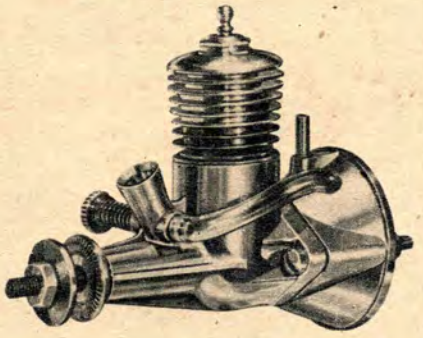


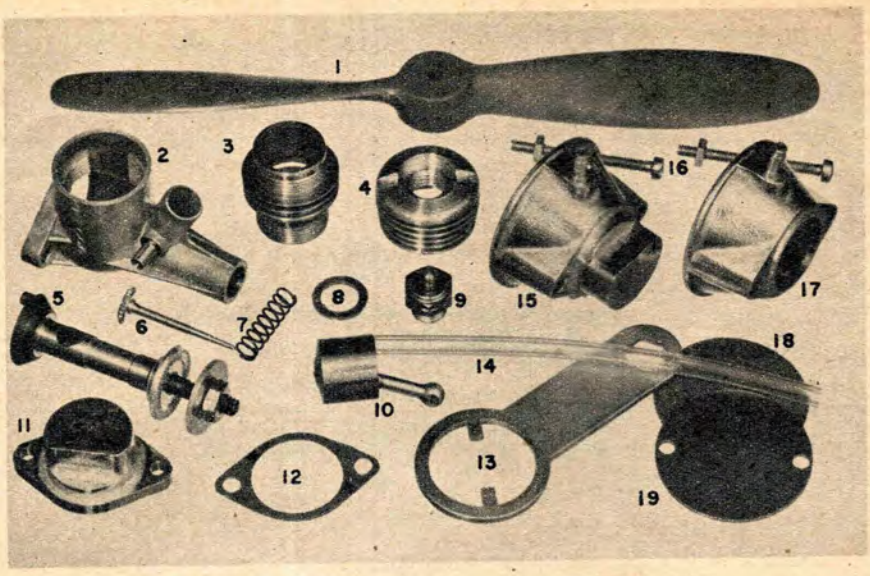
Elmer Scaggs, who was flown to meet from Sheppard Air Force Base in Texas, changes engines for special record trials. He did highest time of aqua-addicts: 19:38.6. Note blunt-back forward float.

Here are a couple of youthful hydro fans getting their feet wet at R.O.W. contest flying: Bill (left) and Walter Spawr from Compton, Calif. They both entered Class A "Zeeks"; Bill is 12, Walt is 11. Bill uses a finger guard for cranking —good idea. Upwind eucalyptus trees in background snared surprising few models during contest.

. . . Don Tune, Paul Gilliam and #3093 demonstrate techniques

Motor of the Month





Atwood .049

Bill's Half-A gits up 'n' goes for F/F or C/L

■ The Atwood .049 Half-A engine is available as a free flight powerplant (at $5.75) or control line motor (at $5.50). A cover for U-control use is available for 35¢; an inverted tank is available for 65¢. A built-in tank comes with the free flight combination.

The end of the fuel line is at the bottom of the tank. The control line version with its small rear cover for compact mounting is intended for use with a separate fuel tank. Inverted installations can be made on free flight with a special tank purchased separately. You'll note the flatter cylinder head, and "Atwood .049" printed on the base.

The crankshaft diameter is .218" to make room for a large rotary valve. Increased oil drag has been offset by undercutting the center part of the crankshaft. This gives the effect of a front and rear main bearing. Three bypass slots are found in the base casting. The bypass slots and intake ports line up with each other for a direct flow of air and fuel mixture.

A hardened and ground crankshaft is used to give long engine life. This runs in a steel bushing fitted into the base casting. The piston is hardened and ground steel and fitted to a close but free running fit in the cylinder. An aluminum ball and socket type connecting rod is attached to the piston by a brass retainer. The cylinder carries only two fins and is threaded at the top to receive the cylinder head. Three intake and three exhaust ports are milled in the sides. The aluminum cylinder head covers most of the cylinder and carries six fins.

The engine test started with a thorough break-in using "Cheminized O&R AA" fuel as recommended by the manufacturer. Starting was best with two or three drops of fuel in the exhaust and nothing in the carburetor. The cylinder should be rather wet.

Performance was good right from the start due to a good piston and cylinder fit and only a few minutes' running time was required to get 15,000 rpm. Further break in brought the top speed up to 17,000 rpm. High speed operation showed no detrimental effect on the engine. After running at 17,000 rpm, the compression seal was good and the main bearing showed no excess wear. Checks on rpm showed a considerable increase in power. On a 6/3 propeller the Atwood did 12,800 rpm. A 5/3 propeller gave 17,000 rpm on this new .049.

Engine Data

Performance. Weight: less tank, 1.1 oz. Propellers—6/4 wide blade wood: 10,500 rpm; 6/3 wide blade wood: 12,800 rpm; 5½/4 plastic: 14,200 rpm; 5/3 wood: 17,000 rpm. Fuel: Cheminized O&R AA recommended. Fuel level test: 6½" at 14,000 rpm.

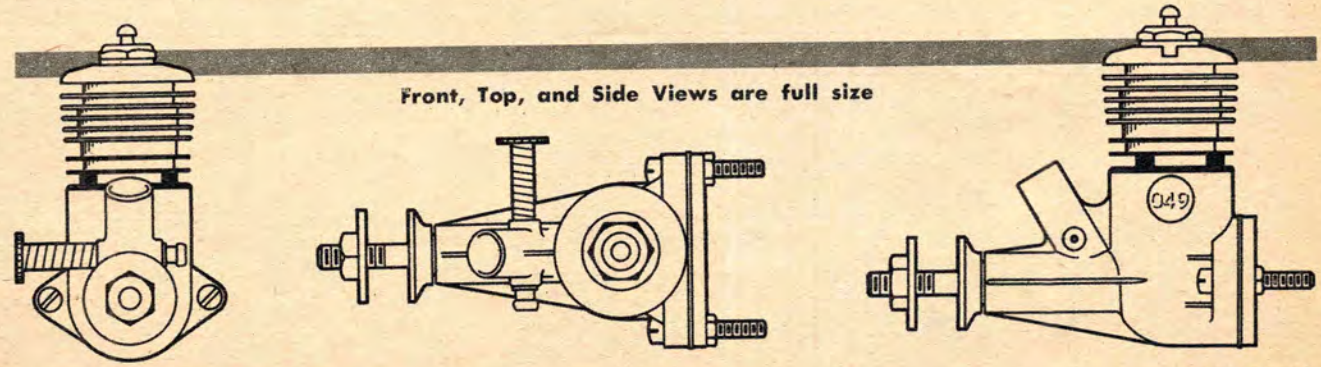
Design Data. Displacement: .049 cu. in. Class: Half-A. Stroke: .360 in. Bore: .420". Stroke bore ratio: .86. Compression ratio head: 5½. Compression ratio base: 1.41. Port area intake: .021 sq. in. Bypass: .030 sq. in. Exhaust: .045 sq. in.

Construction Features. Bearings: crankshaft steel bushing. Crankpin aluminum. Wrist pin (ball design) aluminum. Three bypass passages, undercut crankshaft for reduced oil drag.

Parts Illustrated

1. Plastic propeller: 5½/4, .16 oz. 2. Crankcase: diecast aluminum, .28 oz. 3. Cylinder: steel, .420" bore x 11/16" long, .20 oz. 4. Cylinder head: aluminum, ¾" dia., .11 oz. 5. Crankshaft: steel, hardened and ground, .218" dia. shaft, .091" crankpin, .19 oz. Drive washer: aluminum, ½" dia., .03 oz. Front washer: aluminum, ½" dia., .02 oz. Propeller nut: steel, 5-40 NC thread, .02 oz. 6. Needle valve: brass, 1-72 NF thread, .02 oz. 7. Needle valve spring: steel, .01 oz. 8. Glow plug washer: aluminum, .032" thick. 9. Glow plug: steel, ¼-32 thread, .07 oz. 10. Piston: steel-hardened and ground .420" dia. x .360" long. Connecting rod: aluminum, .09 oz. 11. Back cover plate: die-cast aluminum, .08 oz. 12. Back cover gasket: vellumoid, 1/64" thick. 13. Combination wrench: steel. 14. Fuel line: plastic, 1/16" ID. 15. Fuel tank: die-cast aluminum, 1 3/32" dia., .18 oz. 16. Attaching bolts: steel, 3-48 NC, .07 oz. 17. Inverted tank: die-cast aluminum, .14 oz. 18. Rear tank gasket: vellumoid, 1/64" thick. 19. Tank rear cover: aluminum, .025 thick, .04 oz.

Front, Top, and Side Views are full size

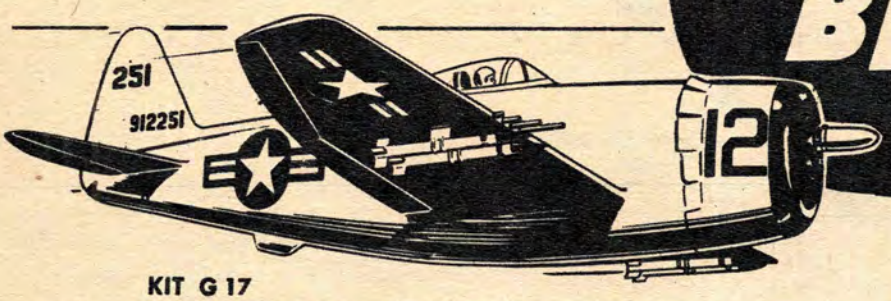


They're NEW, Fellows... and Already They're Your Top Favorites!

We knew you would like them—these new Speedee-Bilt models of ours. Introduced only a month ago, you have already made them tops in popularity. You fellows who have not yet started building these new models—there's fun ahead—for you too. See the Thunderbolt and Panther Jet kits at your hobby dealer today. They are the finest kits Monogram has ever produced.

2 NEW MONOGRAM SPEEDEE BILT *flying models*

BIGGER — BETTER
MORE PLASTIC PARTS



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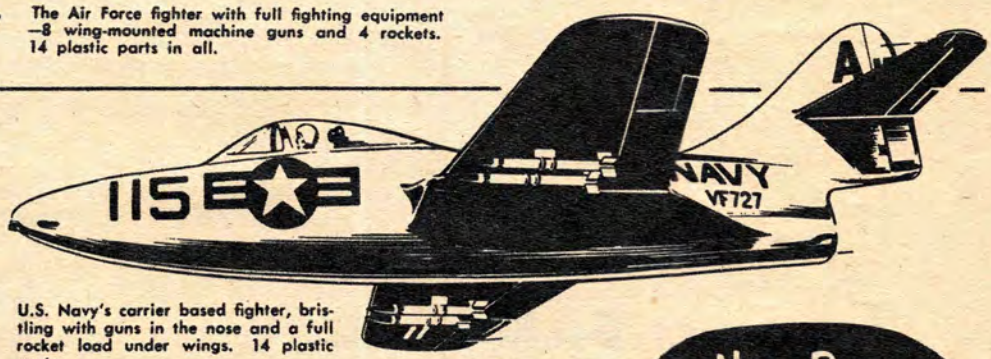
KIT G 17

Thunderbolt P 47

The Air Force fighter with full fighting equipment —8 wing-mounted machine guns and 4 rockets. 14 plastic parts in all.



KIT G 16

Panther Jet F9F

U.S. Navy's carrier based fighter, bristling with guns in the nose and a full rocket load under wings. 14 plastic parts.

New Boxes

New Two-Piece Box Makes Handy Working Tray. No More Hunting for Missing Parts.

Here's Why So Many of You Liked Them So Much

They're the planes you wanted. Thousands of your letters asked most for these models of Air Force and Navy fighting planes.

They've got more detail, more realism than any other models. 14 plastic parts (twice as many as before) provide detail, make assembly easier. You can use regular cement and dope on these plastic parts.

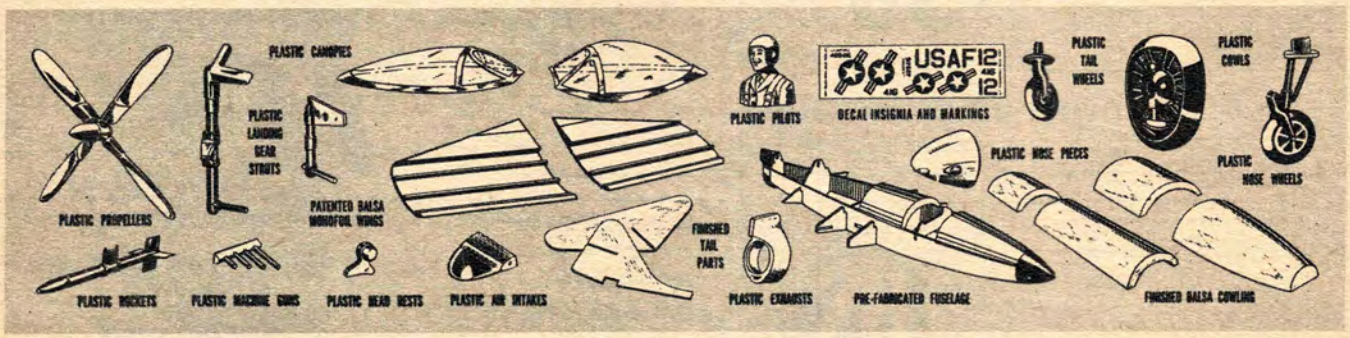
All of the features you liked in 15 earlier Speedee-Bilt kits—patented Monofoil balsa wings—prefabricated balsa fuselage—precision cut balsa tail parts and now—fully shaped balsa cowling.

Genuine decal insignia and markings in authentic colors. (More than in previous kits.)

Now plastic landing gear struts, with full detail are included.

They give you better models with more fun and less hard work than any other kits.

More Detail • More Realism • Fun to Assemble With These Plastic and Finished Balsa Parts



At Your Favorite Store. See these new models at your favorite model and hobby shop. If no dealer near you order from address below. Remit 25c additional to cover packing and postage.

Monogram Models, Inc. 3421 WEST 48TH PLACE, CHICAGO 32 { MODEL AIRPLANES • SHIPS JET POWER RACERS

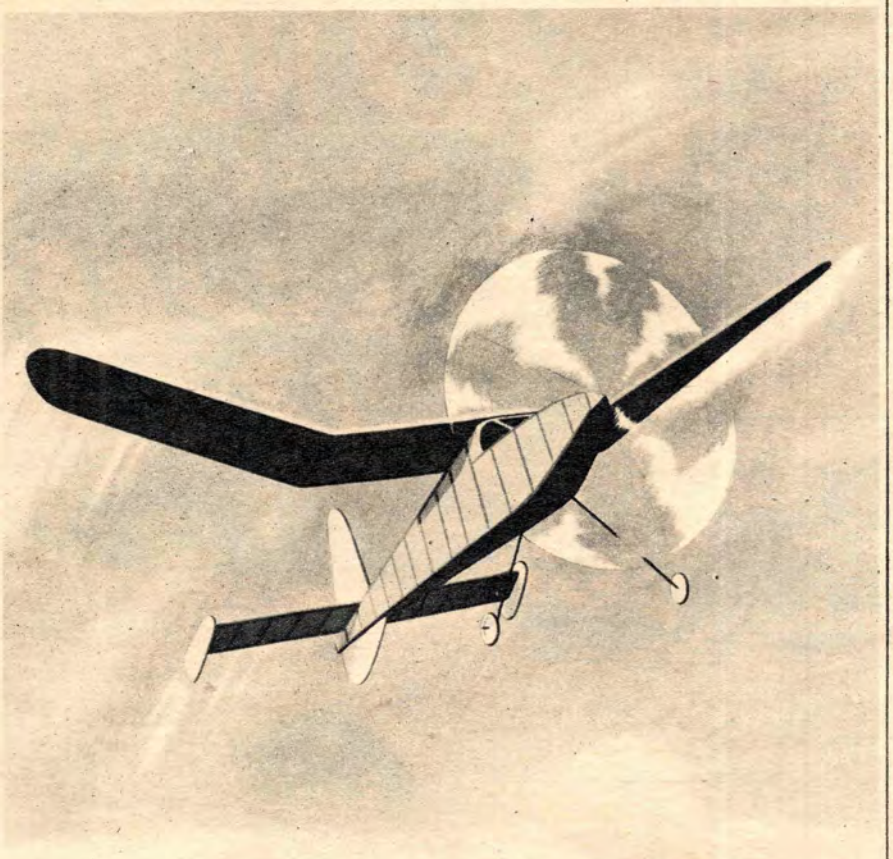
(*Continued from page* 10)

edge of the wing to assure good takeoff qualities.

Technical Topics. Some of the more advanced builders are becoming conscious of the fact that even though they are putting 5 watts into their transmitter, they may be getting only a very small part of this back in the form of R.F. power. If any sort of photoelectric meter is handy, it is easy to get quite an accurate measure of power output—and one that you can duplicate later when desired. For most of the transmitters we can use on 27¼, the blue bead No. 44 radio pilot bulb will do the job. For smaller transmitters in the class of a single 3A4, the brown bead No. 47 bulb is a better choice. A socket may be made to hold the bulb as close as possible to the photocell, and the attachment should be of a slip-on style, so the bulb may be removed, when the exposure meter is used for its normal purpose.

The bulb and meter are calibrated by making connection to a source of 6-8 V., either AC or DC. You must have means for measuring the voltage and current to the bulb, and a rheostat to vary the power. We find it possible to put about 2 W. into the No. 44 bulb, and about 1.4 W. into the No. 47, without danger of burnout. To load up a transmitter, it is necessary to have a coil and condenser hooked in series with the bulb, the whole circuit being tuned to 27¼ mc. or very near it. We use five turns of insulated wire 1" in diameter and 3-12 mmf. trimmer. A carefully made "wattmeter"

(*Continued on page* 58)



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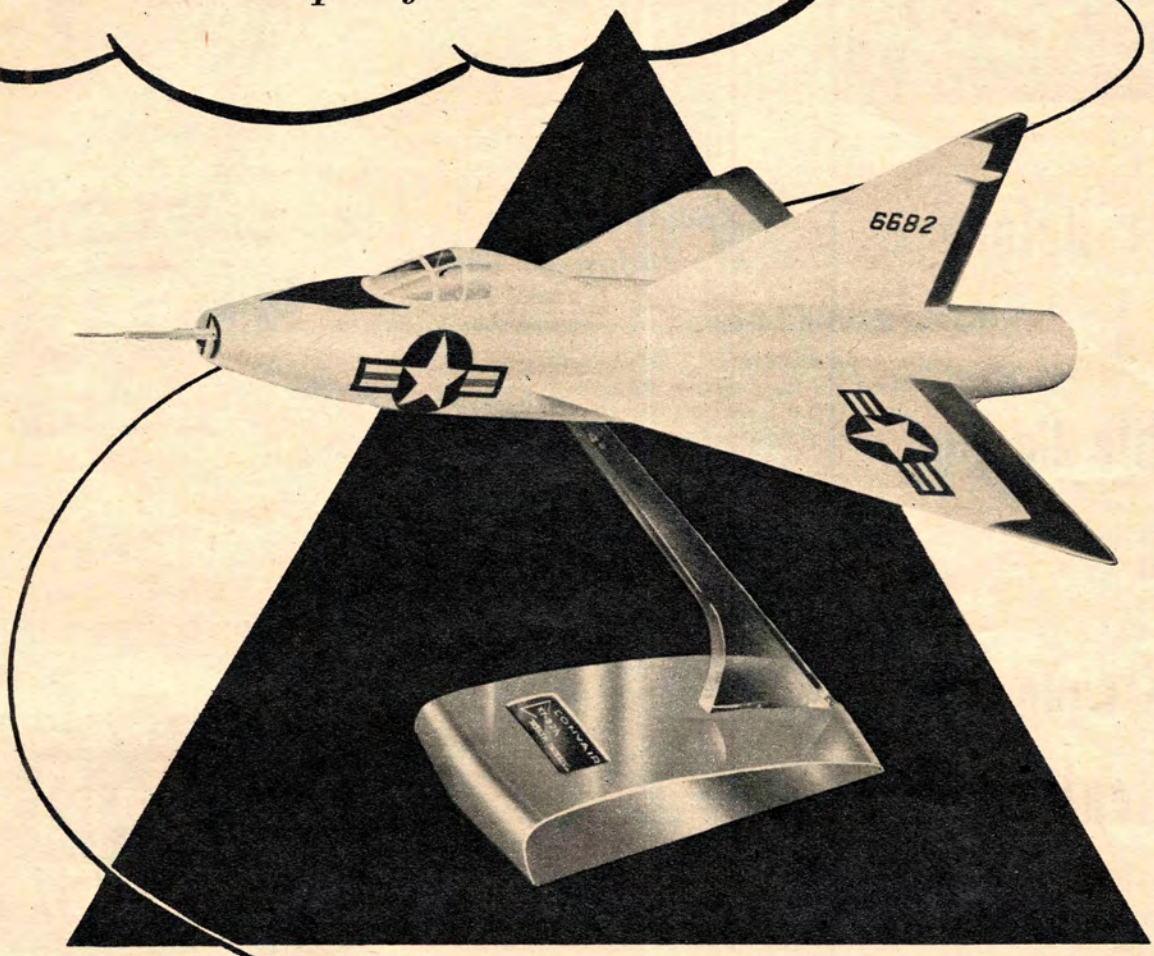
CONVAIR DELTA INTERCEPTOR

"The Shape of the Future"



MORE *Allyn* FIRSTS

$2.49

▲ THE DELTA INTERCEPTOR

Again Allyn is first with a plastic scale model of the Convair Delta Wing.

▲ BALL & SOCKET SWIVEL

Built right into the model, this BALL & SOCKET SWIVEL permits a greater tilting action than found in other scale models with stands.

▲ STRUCTURAL CANOPY

All structural parts of canopy molded in actual color for greater authenticity. Windows are a separate unit and of clear plastic.

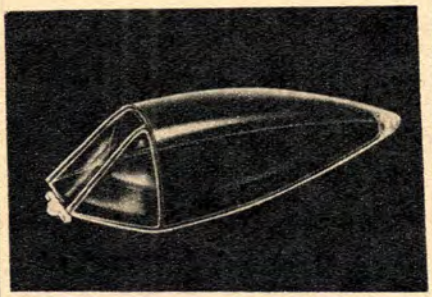
▲ TWO COLOR BASE

Colored base has clear insert panel with plane identification.

Leading the field in quality model plane kits, Allyn again has taken the lead by producing the Convair XF-92A Delta Interceptor, the world's first delta wing airplane. Designed for transonic and supersonic speeds in the stratosphere, it is generally recognized as the "shape of the future" for planes faster than sound.

The Allyn scale model of the XF-92A Delta Interceptor is built true to scale and color, and like all other Allyn kits it is of the finest quality and workmanship. Hobbyists and collectors everywhere will want this model plane of tomorrow, and for quality they can depend upon they will *always buy Allyn's*.

Allyn SALES CO., INC. • 6425 McKINLEY AVE. • LOS ANGELES 1, CALIFORNIA



Never Before Has A Bubble Canopy Been So Strong... So Realistic... So Economical

Here is the bubble canopy you've been waiting for. Not a thin sheet, but a sturdy molded plastic. Reverse detail for striping. Center pin for easy mounting. Now at your dealers' . . . 25c. 1" and 1½" scale models on sale soon.

Sullivan Products

214 W. Dauphin St.
Philadelphia, Pa.

CAP Cadets Skip First Rung on AF's Ladder of Success

Certificates of Proficiency. Gen. Hoyt K. Vandenberg, Air Force Chief of Staff, recently signed the first of a group of Certificates of Proficiency which will be awarded to Civil Air Patrol Cadets successfully completing the required courses of aviation study together with other phases of CAP training.

Recipients of the handsome certificates become eligible to enlist in the U.S. Air Force in the grade of Airman Third Class. This recognition of CAP training shows the high regard Air Force top planners have for CAP and its program. Ordinarily the grade of Airman Third Class is achieved only after the airman has completed basic training and many times not before he graduates from an Air Force technical school.

The certificates are awarded after the Cadet has attended at least one summer encampment at an Air Force base and has successfully completed the battery of examination on the 11 parts of the CAP Study Manual.

The certificate first signed by General Vandenberg went to Cadet James K. Allred, 17, of Salt Lake City, Utah.

Coincident with the launching of the Golden Anniversary Year of Flight at the Wright Memorial Dinner held in Washington, CAP received the Frank G. Brewer Trophy awarded each year by the National Aeronautic Association to the individual or organization doing the most to advance aviation education.

The Cadet program was in a large sense responsible for (*Continued on page 72*)

Air Force Gen. Hoyt K. Vandenberg signs Certificate of Proficiency. Gen. Beau looks on.

TROPHIES

. . . the award worth winning and keeping

Never spent, never forgotten, a Russell Trophy is a lifelong treasure. Specially designed for modelers. Figures rich gold color. Bases ivory or golden walnut. Available with Plymouth and national organization emblems. Trophies, plaques, medals for any budget. Write for free modelers' catalog, or send 35¢ for general catalog.

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MODEL AIRPLANES CRAFTS

Merchandise that sells — delivered faster! Write today on your letterhead for our big new 1953 Model Airplanes and Crafts Catalog!

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A BRAND NEW PRODUCT

by an Old name...

OHLSSON *Gold Seal* FUEL

MADE FOR MODEL BUILDERS BY A NATIONALLY FAMOUS MODEL BUILDER

2 Entirely New Formulas:

OHLSSON GOLD SEAL for ½A Engines

OHLSSON GOLD SEAL "200" for engines above ½A class

85¢ pint 45¢ half pint

In addition to Methanol, Nitroparaffins and high grade lubricants, new and advanced additives not found in any other fuels are included.

WHY the GOLD SEAL name? The name Ohlsson is synonymous with highest quality in the model airplane field. Irwin G. Ohlsson has been identified with the model industry for nearly 20 years as a designer and manufacturer of model engines and fuels.

Ohlsson enjoys the unique distinction of being the only two-time winner of the California State Gas Model Airplane Championship – capturing the coveted award in 1934 – and again in 1936.

This is the background and experience behind Ohlsson GOLD SEAL Fuel – your assurance of finest performance and utmost dependability. Try Ohlsson GOLD SEAL and see for yourself.

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SERVING HOBBYISTS SINCE 1938
YOU HAVE TRIED THE REST—NOW TRY THE BEST
AMERICA'S FINEST
1953 AIRPLANES • BOATS • CRAFTS • CATALOG-HANDBOOK
ACCESSORIES
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A COMPANY IS KNOWN . . . BY THE CUSTOMERS IT KEEPS
USE THIS MAGAZINE AS YOUR TEMPORARY CATALOG!
OVER 10,000 ITEMS
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SM5 AT E AND H means "SUPER MAIL SERVICE"
OVER 10,000 ITEMS
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Model Railroading is fun—and very inexpensive. Our 1953 Model Railroad catalog-handbook lists 92 pages of all gauges. ONLY 35¢ NO STAMPS PRINT NAME
1953 A-B-C catalog will be hot off the press early in May. You can not afford to be without this terrific 60 page catalog. Complete Radio Control Headquarters. Order your copy today. ONLY 25¢ NO STAMPS PRINT NAME
Minimum Order $2.50—$1.00 Deposit on C.O.D.'s—No Stamps—Add 25c Handling Charge Under $5.00—50c Handling Over $5.00

Five-point, five-year-old Jeffry Stevens of Detroit was contestant in last Exchange Club Michigan State Meet. Shown with Half-A PAA-Load model he entered and flew. Good boy!

Why Kill Yourself? Fly Those Models Safely!

■ We've said it before—twice as a matter of fact within the past two years—and we'll say it again: don't fly control line models near overhead wires of any type. Sure, sure, we know you can tell a phone line from a power cable. But we'll bet that's exactly what that 28-year old Columbia, Miss., modeler would have said, too. We mean the one who was electrocuted a short while back.

Those control lines are mighty good conductors—make absolutely certain the only thing they conduct are physical impulses from you to the bellcrank, not electrical impulses from the high-voltage wire (which one can so easily forget is there) to you!

In a nutshell: don't fly within 500 feet of any overhead wires.

Walt Good, designer of the famous Guff and Rudder Bug, with fuselage of new .19 powered R/C job. Walt is planning for both rudder and elevator control on this new model.

Films For Club Sessions. Here's another new film to add to your list: "The History of the Helicopter." Running time is 25 minutes; it's on 16mm sound; produced by the Shell Oil Company for general audiences. For info contact the Shell folks at 50 W. 50th St., New York 20, N. Y., or 100 Bush St., San Francisco 6, Calif. Other SHC aviation movies are "How an Airplane Flies" and "Flight Log" and the world-famous annual air show at Farnborough, England, where best new British aircraft are put through their paces.

Running 26 minutes, the 16mm sound "Highlghts of Farnborough" includes spectacular air-to-air shots of such planes as the Hawker "Hunter" and Supermarine "Swift" fighters breaking through the sonic barrier—with actual sound recordings—and of the enormous, 140-ton Saunders Roe "Princess" flying boat, and many others. Some of the world's most advanced delta-wing aircraft are shown in aerobatics, and one sequence pictures the latest helicopters, including the twin-engine Bristol 173, carrying 13 passengers.

School Model Aero Clubs. Got an MAC in your school? It's a great way to win new converts to aeromodeling, get support for the activity locally and let your teachers know how model aviation develops one's personality. Here's an initial listing of school clubs furnished to us by the Office of Education in Washington, D. C. We know there are many more such groups, so urge you to register with the OofE if you qualify.

Balsa Butchers, Brophy College Prep, Phoenix, Ariz. George Meno, president.

Winged Trojans, West Junior High School, Parsons, Kans. David Shaw, president; George Hudiburg, sponsors.

Dixon High School MAC, Detroit, Arthur Pawlaski, president.

Lancaster, Minn., High School MAC. Fred Suppes, president; Robert A. Hed, faculty advisor.

Millburn, N. J., High School MAC. Bob Lincoln, president; Bruce McPherson, sponsor.

Flyin' Injuns MAC, Toms River, N. J., Schools. Max Culpepper, president; Seymour Hertzon, faculty advisor.

Wing-Dingers, Kennebec, S. D., High School. George Milnar, president; E. J. Charboneau, supervisor.

Austin, Texas, High School MAC. Bobby Colthorp, president; Lawrence Eads, faculty advisor.

Glue Daubers, George Washington High School, Danville, Va. Neal Howard, Jr., president; Miss Reynolds, faculty advisor.

USAF Data Sheets. The Air Force still hasn't come up with anything like the fine three-view drawings available to modelers from the Navy in Washington, but we did uncover some fact sheets that may be useful. There are three of these: "USAF Bombers," "USAF Transport-Cargo-Liaison-Training" and "USAF Fighters." The specs are fairly complete. You can secure copies by writing Col. Thomas Carhart, School Section, Directorate of Public Relations, Department of the Air Force, Washington 25, D. C. Tell the good Colonel that Air Trails sent you.

(*Continued on page 78*)

NEW!

A Realistic Model of the U. S. Army's Famous "HAWK" Fighter

SCIENTIFIC CURTISS Hawk P6-E

It's BRAND NEW! Scientific's authentic replica of this world famous fighter bi-plane. Here's an all new control-line bi-plane that has everything . . . it's definitely "your" kind of model. Power it with any of the small bore engines and you've got a real "thriller." The 100% complete kit is precision prefabbed for easy assembly. It's complete in every detail . . . carved balsa fuselage, formed wings and struts, metal drag ring, rubber wheels, 3-color decals, pilot head, all necessary hardware, etc., etc.

$2.95

SPAN: 17½" LENGTH: 10½" ENG. DISP.: .020 to .074

BEECHCRAFT "17" $2.95
SPAN: 16" For .045 to .099 Eng. U-Control, prefabbed model has carved balsa fuselage, formed balsa wings, metal cowl, etc., etc.

SPORT RACER $1.50
SPAN: 18" For .020 to .074 Eng. A good U-Control performer at a remarkably low price. Completely prefabbed kit. Easy to assemble.

LITTLE MUSTANG $1.95
SPAN: 18" For .020 to .074 Eng. Features carved balsa fuselage, formed balsa wing, metal parts, etc. U-Control. Prefabricated.

LITTLE SABRE $1.95
SPAN: 18" For .020 to .074 Eng. In honor of the F-86 (Sabre Jet). U-Control model. All parts cut and shaped for easy assembly.

BOEING P-26A $2.95
SPAN: 18" For .020 to .074 Eng. An excellent control-line flyer. Prefabricated kit is complete in every detail . . . all parts finished.

RIVIERA $3.50
For "½ A" Eng., Electric Motors Authentic Chris-Craft replica with a 12" carved balsa hull and brass metal fittings. All parts finished.

SPECIAL $3.50
For "½ A" Eng., Electric Motors Popular Chris-Craft runabout . . . completely prefabbed with carved 12" balsa hull, metal fittings, etc.

Buckeye Jr. Cabin $3.95
For "½ A" Eng., Electric Motors Here's our sleek cabin cruiser. Has a removable balsa cabin, 14" carved balsa hull - 100% complete.

DREAM BOAT $1.95
"½ A" Eng., CO_2, or Elec. Motors Our exclusive aeronautical fin and rudder design. Prefabbed model has 12" carved balsa hull, etc., etc.

BUCKEYE SR. $4.95
LENGTH: 17" For .099 to .29 Eng. Our deluxe speedboat . . . a real thriller. Features precision finished parts . . . super prefabbed.

F-86 SABRE & F-51 MUSTANG - Both $1.50
Our sensational 2-in-1 kit. Contains two complete, realistic profile models. Both control-line flyers take .020 to .074 engines . . . both have 18" wingspans. A real "buy."

BUCKEYE JR. $3.95
LENGTH: 14" For .020 to .074 Eng. A "beaut" of a speedboat. Prefabbed model is 100% complete—carved balsa hull, brass fittings.

CO_2 SQUIRT $1.50
"½ A" Eng., CO_2, or Elec. Motors Here's an outstanding performer at a tiny price. Kit comes prefabricated for easy assembly.

SEA HAWK $2.50
"½ A" Eng., CO_2, or Elec. Motors Prefabbed. Has a 12" carved balsa hull, brass metal fittings, etc. Aeronautical fin and rudder design.

AERONCA SEDAN $1.95
SPAN: 22" For .020 to .074 Eng. U-Control, authentic scale model. It's prefabbed . . . with a carved balsa fuselage, formed wing, etc.

CESSNA "170" $1.95
SPAN: 22" For .020 to .074 Eng. Scale control-line model. Prefabbed kit has formed balsa fuselage and wing, all metal parts, etc., etc.

PIPER CUB $1.95
SPAN: 22" For .020 to .074 Eng. A U-Control scale replica of the real plane. Prefabbed model has metal cowl, carved fuselage, etc.

STINSON VOYAGER 1.95
SPAN: 22" For .020 to .074 Eng. Scale model. Carved balsa fuselage, formed wing, aluminum cowl, etc., in the prefabbed kit. U-Control.

½-PINT RACER $2.95
LENGTH: 9" For "½ A" Gas. Eng. Speeds over 40 m.p.h. Features direct wheel drive. Prefabbed kit has formed body, rubber wheels.

LITTLE BIPE $1.50
SPAN: 16" For .020 to .074 Eng. Carved balsa fuselage bi-plane . . . prefabbed for easy assembly. It's control-line. A real value!

LITTLE DEVIL $1.50
SPAN: 18" For .020 to .074 Eng. An economically priced U-Control model. Prefabbed parts include: formed balsa fuselage & wing, etc.

LITTLE ACE $1.95
SPAN: 18" For .049 to .099 Eng. For team racing or sport flying. Kit is 100% complete with formed fuselage & wing, metal cowl, etc.

BEL AIR $2.95
SPAN: 18" For .039 to .099 Eng. A control-line flyer that's loaded with flying thrills. Prefabbed model has all parts finished.

DYNAMIC $3.50
SPAN: 26" For .099 to .29 Eng. A deluxe U-Control model. Superprefabricated . . . all parts accurately detailed. A real "thriller."

See the complete line of Scientific models at your favorite Hobby Shop.

BE SPECIFIC . . . SAY SCIENTIFIC

FREE! Scientific's brand-new Spring-Summer catalog is just off the press. It's now available at your dealers or by writing direct.

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You've had car kits—but these are different! So EASY to build . . . only a few parts for quick assembly . . . the Slickest Kits you've ever seen.

F & B Model Car Kits

JAGUAR XK120
Model of the world's fastest stock car, traveling at a speed of 132.6 miles per hour. Kit Sells for **$1.49**

(By mail add 25c)

NASH RAMBLER CONVERTIBLE
Kit Sells for **$1.69**

CHRYSLER IMPERIAL SEDAN
Kit Sells for **$1.69**

COMPLETELY AUTHENTIC right down to the metal insignias and emblems.

WAIT 'TIL YOU SEE THE PLANS . . . so fully detailed . . . with step-by-step construction in picture and words. That's sure different from obscure blueprints you can't figure out.

EXPLODED VIEWS of each and every part so you simply can't miss.

YOU'LL BE PROUD of your finished cars . . . they'll be something to brag about AND JUST LOOK AT THE SMALL COST!

- QUALITY BALSA
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- REAL RUBBER TIRES
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F & B 's GAS MODEL AIRPLANE KITS are Tops!

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TOPS IN QUALITY AT DOWN TO EARTH PRICES

Make Essco Your R/C Materials Headquarters—Check this Listing and be Convinced

SIGMA 4F, 8000 & 10,000 ohms..... $ 5.95
SIGMA 5F, 5000 ohms, ultra sensitive wt. 4 oz., the ideal relay for any receiver..... 7.95
GENERAL ELECTRIC MINIATURE, 10,000 ohms SPNO, an inexpensive unit for 2 tube sets.... 1.95
SIGMA 4F COILS, 10,000 ohms, fine for repairing those defective relays you have.... 1.25
CRYSTALS, 27.255 mc./.04% tolerance, PETERSEN Z9, with ceramic plugin socket.... 4.95
PRECISION WESTON-SANGAMO 2" PANEL METERS 0-5 ma. $2.95; 0-50 ma..... 3.25
PLUS DUAL RANGE METER BOX..... 4.95
6 VOLT DYNAMOTOR, delivers 180 V/30 ma & 250 V/125 ma, our biggest bargain..... 11.95
WILLARD BB-54 2 volt storage cells, ideal power for glow plugs & MARK 1 TRANS..... 2.95
WILLARD ER-40 6 volt 40 ampere storage battery ideal for operating power packs away from car. Ship Rail Exp. only..... 5.95
VIBRATOR PACK, 6 volt input, 90 volt/30 ma, will operate on 4 #950 cells, completely enclosed in rd. alum. case 2¼" dia. x 3½" lg. 3.95
WHIP ANTENNA, 3 tapered threaded sections, 9½ ft. long with top of cabinet base mount. Will boost your power output..... 2.95
ALNICO 5 DISC. MAGNET, 1" dia. x ⅛" thk. with center hole, ideal proportional control 1.25
EVEREADY #467, 67½ volt battery, outdated ARMY SURPLUS but good as new, pkg./5 for 2.95
EQUAL SAVINGS ON NEW FIRST GRADE COMPONENTS: condensers, resistors, switches, coils, tubes, etc.

THIS MONTH'S SPECIAL

AIR TRAILS MARK 1, 2 TUBE 5 WATT TRANSMITTER, complete unit in new standard metal case with meter, antenna, remote cable & all batteries, nothing else to buy..... $32.95
COMPLETE PARTS PACKAGE to build your own 15.95
PE-157 ARMY SURPLUS POWER UNIT, for those who want to duplicate Mac's job..... 7.95
3D6 TUBES SPECIAL FOR ABOVE SET TWO FOR 1.95
TRANSMITTERS and RECEIVERS
THE LORENZ RECEIVER PARTS PACKAGE, complete w/tubes & relay, drilled base.... 13.95
MILLER RECEIVER PARTS PACKAGE, complete with tube and SIGMA 4F relay..... 11.95
AIR TRAILS PLAN R-101 RECEIVER PARTS PACKAGE, with XFG-1 and SIGMA 4F relay 12.95
ESSCO SUPER, a new two tube reliable receiver at single tube price, complete w/relay..... 19.95
AIR TRAILS PLAN R-101 TRANSMITTER PARTS PACKAGE, with tube, crystal, antenna and remote keying button..... 14.95
ESSCO SUPER, our own new "HIGH POWER" SPECIAL, 2 tube circuit, full 5 watt input. Easier to adjust than single tube jobs. You can always bring them back with this set. Complete with tubes, antenna & cabinet 27.95
REVOLUTIONARY PROPORTIONAL CONTROL SYSTEM. Your single channel equivalent to multichannel system, better than ½ degree accuracy. Operates servo-motor control in model. Complete control box, not a kit..... 14.95

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ELECTRONIC SPECIALTY SUPPLY CO., 58 Walker Street, New York 13, N. Y. WAlker 5-8187

Jasco Sailplane fitted up for R/C by Edward Phillips, Sierra Madre, Cal. Flew officially in the Nats radio event; 54 mc. rcvr, Hivac tube.

West Gets Goin'; F.A.I. Plans Jelled

■ We took in a meeting of the SCMA the other night and found the fellows hard at work planning the coming contest season. The cooperation taking place between the U-control flyers and the free flighters makes us wonder just what happened to that unmarked line which used to keep them separated.

Bob Moncrieff, who is the contest coordinator for the Southern California-Arizona area, is the new president of the organization, with Bob Wiehle as veep. Discussions for the evening took in the whole summer's flying with every possible activity under consideration. A number of contests were mentioned,

"Some thrust, I'll say!" George Aldrich, Plymouth stunt champ '51 (rt.), proves it in tug-o-war with rival ship. One way to compare 'em!

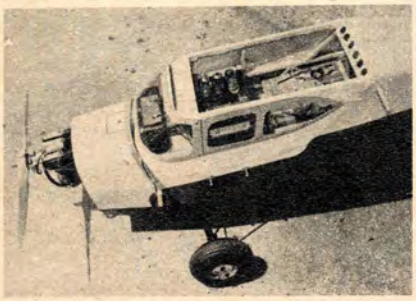
a complete calendar of active weekends being encircled to keep one and all posted on what is going on.

The main item on their agenda is the activation of the new area which has been set aside just for model flying in this Sepulveda Recreation Area. From an interested onlooker's viewpoint, it appears as though these model builders have been a buffer army to allow the area to be used for such recreation purposes, and did a really swell job. Remember the dust and the rough take-off area of last summer? They are concentrating on really good areas for all types of model flying so that the contestant will have the proper facilities available for any kind of operation.

There are numerous club contests scheduled for practically every weekend, but the scheduled club contests very graciously step aside for larger events.

Live in the West?
Travelling East to the Nats?
Looking for a Car Pool?

Dick Everett, Air Trails' Western Round-Up man, has volunteered to do the clearing house work for linking Western aspirants to National Meet fame with empty space in Eastward-bound vehicles. If you plan to drive and want company, or if you are looking for transportation, advise Dick Everett, c/o Air Trails, 304 E. 45th Street, NYC. He'll do his best to getcha in touch with similarly minded Western modelers.



One of the San Francisco Mustang Club's famous Cub Cruiser radio models with ignition Spitfire engine and Rockwood 3-reed, 3-channel set-up.

The forthcoming eliminations for the International contests were proposed and discussed with the idea of trying to make them contests where the best possible models—those which are the most consistent—emerge the ultimate representatives. Among proposals under discussions and one which everyone seemed very soundly behind was to have all contestants in three different contests of three flights each. The first to take place localized, much the way the Wakefields have been run in the past, and a complete record of all flights being kept. The highest averages from these contests entitling their flyers to compete in a two-day, Saturday afternoon and Sunday morning contest, with three flights each day. The highest average of these nine flights would pick the winner; from this the fellows feel that the best possible representative can be chosen, one who will make a very good showing for us when the finals come up.

We feel that the U-control, Wakefield, Nordic, (*Continued on page 62*)

Don't laugh at this well-built "box"; its proud poppa, Ray Morgan, garnered 14th at Nats. Cub .09; Aerotrol on 27 mc. Takes off, lands nicely.

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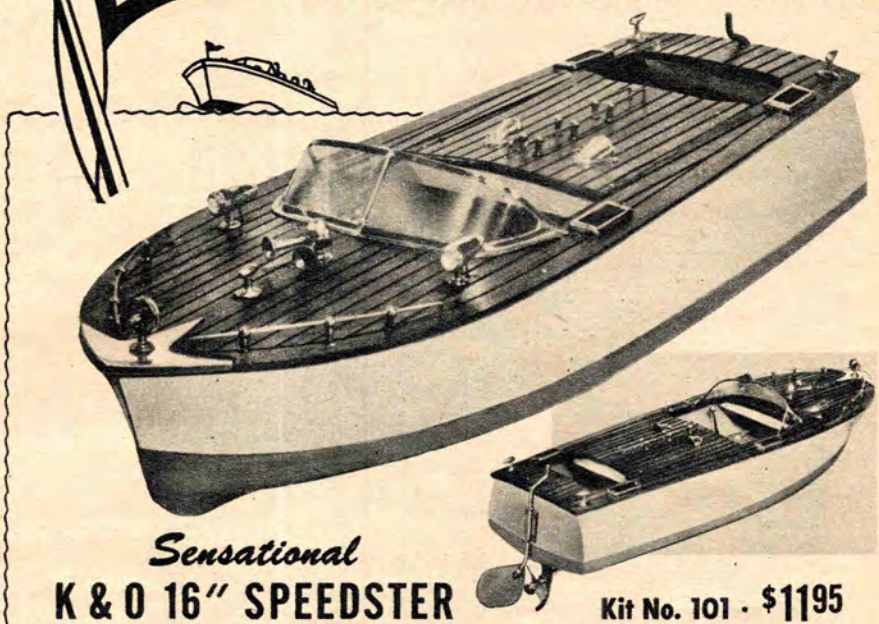

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(*Continued from page 50*)

of this sort would be a useful club project.

The variations and combinations to which escapements have been put are enough to make the head swim. Now comes William Schwab (Cleveland, Ohio) with a real dilly. His rig consists of a single magnet and wheel of special four-position type, which controls two four-spoked shafts that drive rudder and elevator. As he has it worked out, there are eight separate control positions, which produce up, down, right and left, separately or in combination, as desired.

Bill says the thing is strictly theory so far, for he hasn't "had time to build it and also to put my R/C job back together." No need to go into details on that last part! His arrangement looks perfectly feasible, though. Wish we had room here to show all the control positions this rig will give.

Q. and A. R. Schmidt (Alexandria, Va.) wants to know who manufactures resonant reed decoders for R/C models. Only ones we know of are those by Rockwood Radio Controls (Walnut Creek, Calif.), and the English E.D. unit sold by Polk's (New York 1, N.Y.). Some of the more handy modelers have made their own.

John Murray, Cashmere, Wash., is puzzled by the arrangement used to get three-control functions, pictured on p. 38 of our Jan. '53 issue. This is the one at the top of the page, and the system uses resonant reeds. Briefly, it works like this. There are three tuned reeds in the receiver, each of which will respond to a different tone, and only to that one tone. The transmitter is equipped to send out these tones as required. In the arrangement we show, one tone is used for a rudder escapement, one for the ele-

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vator esc., and the third for the motor esc.

On the control box shown, the rudder and motor are operated by the switch lever at upper right (which has three positions) and the motor by the button at lower right. The three knobs along the left are used to tune the transmitter audio output to the exact tone required by the three reeds in the receiver. Does that take care of it, John?

Leonard Opdyke, Shreveport, La., intends to build an 80" scale model of the World War I Bristol F2B, and wants to equip it with radio. Since he has apparently never flown R/C before, we strongly recommend a simple installation. Equipment made for use on 27¼ mc. or on 465 mc. may be used without taking a license exam. These are the Citizen's Bands, and the license is just a simple form that you fill out and send to the F.C.C.

He wants also a system that will return to neutral if there is any failure in the equipment. The receivers that have low plate current with no signal, the current rising when you push the transmitter button, are the "safest," since a burned-out tube, broken wiring, battery failure or going out of range, all leave the escapement in the neutral position; all self-neutralizing escapements return to neutral with most signal and circuit failures. Good luck on this ambitious project—send us a pic when it is finished!

Commercial Corner. Big excitement at the Model Industry Assoc. convention, held in Chicago early in February, was new R/C sets, parts, kits. Besides those we have announced here in the last issue or two, another plane kit was launched; it is the "Guided-Mite," a product of North American Model Products (Newport

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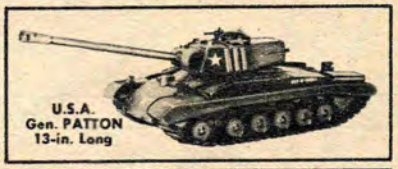

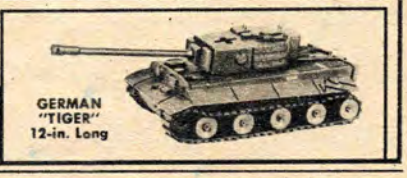

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News, Va.). The kit is well pre-fabbed, is designed for Half-A engines. Wing area is 324 sq. in., and ship has trike gear with large radio compartment, high aspect ratio wing, is designed for real maneuverability with maximum stability. Price is $6.95.

This concern, which also markets Control Research two-tube receiver, (priced at $24.95 with two RK61 tubes, less relay) now sells a kit for this receiver, $7.95, less tubes and relay. They also showed several transmitters, including a pocket size job for $29.95—or $21.95 in kit form, a proportional control box in assembled or kit form and a dual control setup.

Philmore Mfg. Co. (New York 3, N.Y.) showed a single tube transmitter kit using 3A4, for $33.50 less batteries, but with tube crystal and antenna. A companion receiver using an RK61, sells for $26.50 in kit form.

Polk's Model Craft Hobbies (New York 1, N.Y.) now have available brand-new Sigma 4F relays, right from the factory, at $7.00 each. These are 8,000 ohms. They also have the E.D. polarized relay in either 7,500 ohms or 4,300 ohms, for $7.50. Nine-foot antennas, consisting of 3-ft. sections sell for $4.00, plus 35¢ shipping charge.

Another source of disc magnets for proportional control actuators has turned up. Morris Moses, 1720 Union St., Schenectady, N.Y., offers a disc 1" dia. x ¼" thick, with 5/32" center hole and correctly magnetized, for $2.35. This magnet is ground all over, and the hole is in a soft metal center bushing. He also has Sigma 10,000 ohm relays that are good for use with such receivers as the North American Twin Tuber, for $1.80 each. (These relays are not for use with single gas tube sets.) Mr. Moses, incidentally, is an avid R/C experimenter, and would like to swap circuits and ideas with other R/Cers.

Dealers are now receiving the new Macnabb 27.255 mc. Citizen-Ship equipment. Marketed by Vernon C. Macnabb Co., (Indianapolis 20, Ind.), this consists of a single hard-tube receiver and a two-tube transmitter. The receiver idles at a plate current of around 1.5 ma. and the current drops down to .5 ma. or less with signal. It is not particularly sensitive to antenna length. The receiver, which is fitted wth the highly reliable Sigma 4F relay, weighs 4 oz. The transmitter uses a 48" antenna, and is of the oscillator-amplifier type. Nothing you do to the antenna has any effect on the crystal oscillator or output frequency. Furthermore, this unit is equipped with an antenna tuning system that assures the maximum output from the 3V4 amplifier tube. It sells for the same price as the firm's 465 mc. transmitter, $39.75 with tubes and crystal. The receiver costs $24.95 with tube and relay.

—HOWARD G. MCENTEE

SOVIET AF

(*Continued from page* 21)

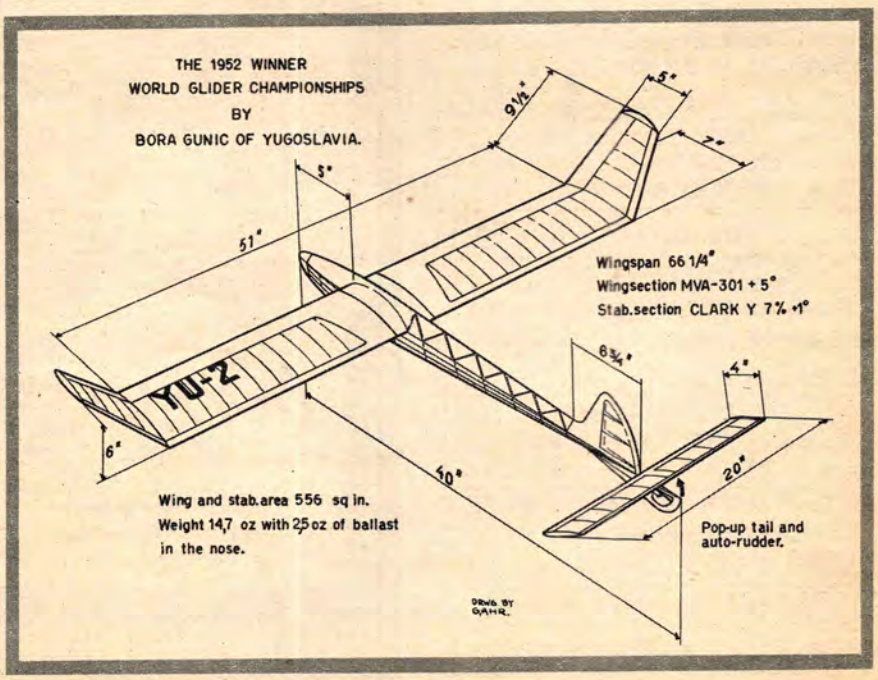
versatile PO-2 biplane. In its latest form it features a redesigned rear fuselage providing improved rear vision and including a casualty entry hatch. Powered by a 145 hp M-11 radial, the Yak-14 has accommodations for two stretcher cases and an attendant.

The Red Army used small numbers of A-7-3a gyroplanes before World War II, and the first successful Russian helicopter, Ivan P. Bratukhin's Omega, was developed into a twin-engined eight-passenger 'copter. Publicly demonstrated in 1949, an even larger machine derived from the Omega has since been reported, powered by two 1,850 hp radial engines mounted on framework outriggers, and carrying 20-30 troops.

Considerable numbers of a small four-seat liaison helicopter designed by Mikhail I. Mil have been delivered to the Army. Bearing some resemblance to the Air Force's H-12, the Mil 'copter is all-metal construction and powered by a 650 hp ASh-21 radial engine. Featuring a simple basic layout, it has a conventional three-blade main rotor and three-blade anti-torque rotor. Helicopter production in Russia will shortly exceed that of U.S.

Operational service in Korea is now a phase in the re-worked Soviet pilot-training scheme, fighter pilots being thoroughly indoctrinated in all aspects of jet combat under actual operational conditions. The trainees fly from Antung and Ta Tung Tou airfields close to the Yalu River and finish up with the graduate course in MiG-alley against F-86 Sabres.

The fledgling pilot undertakes primary training on the Yak-18 tandem two-seater (160 hp M-11-RF radial), then progresses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to the 300 mph Yak-11 (650 hp ASh-21 radial) basic trainer. This process, although flexible, requires between 250 and 300 hours.

Embryo attack bomber pilots graduate to the twin-motor flying school using obsolescent Pe-2 and Tu-2 trainers before converting to jets on the new U-Il-28, a conversion trainer version of the Il-28 bomber with stepped cockpits. Radio-operators, bombardiers and navigators complete a course on a special crew-training version of the Yak-15 light feeder liner before being posted to an operational training school where combat crews are assembled.

Future fighter pilots convert from the Yak-11 to either the U-Yak-15 tandem two-seater (one M-OO4B turbojet of 2-400 lb. thrust), or the U-MiG-15 two-seat operational training version of the standard MiG. The U-MiG-15, probably the fastest conversion trainer in the world, is a comparatively simple adaptation of the fighter, having the same external dimensions but featuring a longer cockpit canopy enclosing trainee and instructor. Room for the second seat has been attained by the deletion of a fuselage fuel tank, the reduced fuel capacity being made up by the attachment of small tanks to the wings. The instructor sits behind and slightly above the trainee; there would not seem to be room for ejector seats.

Some U-MiG's carry armament but the majority are unarmed and the retention of the gun fairings under the nose would suggest that the conversion for training is made during a final assembly stage on a fighter production line. The introduction of this swept-wing trainer means that Red instructors, many of whom have acquired operational experience over Korea, can coach trainee-pilots in all high-speed techniques and maneuvers before he steps into the cockpit of a MiG-15 fighter.

The Soviet Fleet Air Arm, although representing less than 10 percent of the total Red air strength, has gained in importance since the formation of a Navy Ministry in 1950 under Admiral I. S. Yumashev and the completion of the first three Soviet aircraft carriers. The first of these carriers, the *Maxim Gorki*, was commissioned in June 1950, and standard fighter equipment is a navalized version of the MiG-15 approximating the FJ-2 Fury.

The deck-landing MiG-15 features a strengthened undercarriage, an "A" frame arrester hook, catapult points and manually folded wingtips. Carrier-borne attack elements employ a two-seat low-wing monoplane of late wartime vintage powered by a 1,850 hp ASh-82FNV radial; recent reports from the Baltic refer to a new carrier-borne aircraft powered by a single turboprop. A single-engined reconnaissance amphibian, designed by G. M. Beryev, is also being used by Soviet carriers.

A small single-seat observation helicopter by N. I. Kamov operates from the larger Russian submarines. Developed from the Kamov K-17 of 1948 vintage, it is powered by an ultra-light motor which drives two sets of co-axial three-blade rotors and is equipped with large pontoon bags that enable it to undertake amphibious operations.

The largest Navy air formations are land-based and are under the control of the four Naval Commands (Northern, Baltic, Black Sea and Pacific). Such types as the Ilyushin Il-28 equip the coastal-based shipping attack squadrons. The Fleet Air Arm operates its own transport services and is responsible for coastal patrol and air-sea rescue services, for which it operates a new twin-engined flying-boat. Conservative estimates place Soviet Navy air strength at roughly 2,000 aircraft.

(To be concluded)

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WESTERN

(*Continued from page 57*)

F.A.I. gas eliminations should all be held and that there is a good chance that all but the Nordic will have a West Coast modeler at the finals. Most fellows feel that we have our very best chance in U-control and that it should be given every consideration since we will have to make a good showing some time in the very near future. This contributes greatly to the enthusiasm apparent here at present, and the model builders have promised to give their wholehearted cooperation to the running of these events.

The tentative localities which have been given very serious consideration for the F.A.I. elimination are: San Francisco area, Washington-Oregon area, Phoenix, Tucson-El Paso area, Los Angeles area, and possibly the Salt Lake City area. This embraces a lot of territory, but it does make for contests that will probably take in 90 to 95% of the active contest flyers. No locality for the finals has as yet been chosen, but the Bakersfield area for gas, glider and Wakefield seems logical, with some spot near San Francisco for U-control.

It is thought every entrant should have a vote in this so it is possible that each contestant will have a ballot to vote for his 1st, 2nd and 3rd choice spot. The trips to Europe and possible merchandise prizes are surely incentive enough for added effort in this competition. Any more ideas?

We dropped in to see the new President of the Academy, Keith Storey, and found him a very busy man indeed. He had to answer the door with his left hand since he had a pen very firmly clenched in his right, and it seemed hours before he finally set it down to issue a statement to the press. Keith, as we have known him, has always been a very serious modeler. He realizes that rules are made to be followed, so he does just this, while running a contest or flying himself, to the end that each and every contestant has his equal chance but no more, no breaks for anyone.

He had a very hard choice to make when he was nominated for President, one which he spent a lot of time thinking about before he accepted, that of whether or not he would be able to keep his industry job at the factory and work for the Academy solely as its President, if elected; he made the choice and there is no doubt in our minds that he will make one of the best Presidents we have ever had and to do this it will take a lot of work.

One must appreciate the time and money he will have to spend; he doesn't get paid for the job, expenses not being furnished. It will cost him a lot, critics will be looking for the slightest chance to howl that he did this for the industry—which we know will not enter his mind. Instead he will bend over backwards to keep clear of such criticism. Keith was and could be today one of the world's top U-control flyers, he still builds models and is a hard contestant to beat. He is very thorough in the preparation of his models and will be so in his leadership of the Academy. Let's give him

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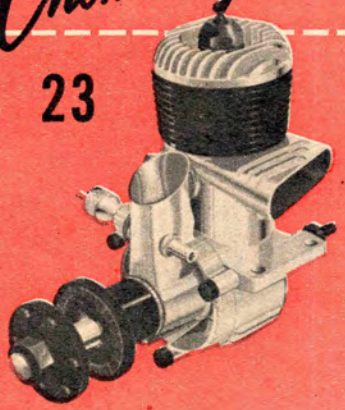

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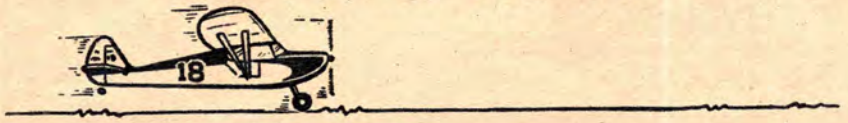

that make the Flites...

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Beasley & Clem 1st (open) C, 3rd A, 4th B at 52 Nat's Frank Stone, 1st (open) B

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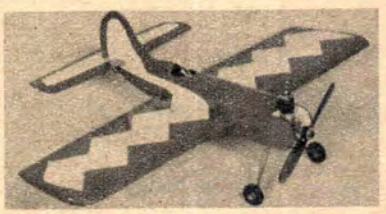

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Feather-Lite BALSA

Empire Model Engineering Co.
P.O. Box 1162, Nashville, Tenn.

the cooperation he needs; he'll help us.

We competed in only two contests this month. (It may surprise some there were *any* contests, but don't forget where we are.) One was a small meet where an incident occurred which we feel will contribute nothing to our sport but will instead hurt it. At most localized monthly meets it has become the accepted practice to put up small trophies for first in each event and an engine for high time, as was the announced intent at this one. The entry list was a little low, so when it became apparent that this one would run in the hole, the trophies alone were awarded and the engine withdrawn.

There are, of course, two sides to this incident, one that a shop owner was the director and he put up the prizes, the other that this ill-advised act in itself will limit future competition in its own way. Surely, out-of-towners will not drive a hundred miles, pay a one dollar entry fee, and not get the prizes announced. The pathetic point to this issue is that the contest was not sanctioned, for if it were, we feel that the Academy would have acted to protect the modeler by a possible cancellation of the CD license, which seems the only out.

This contest, while small in attendance, brought out some really top flight flyers and there were no ties even though the six-minute limit was used. The top time of 15½ minutes, however, is tribute in itself to the flying done, with second place only six seconds behind.

Tucson with Roy and Edith Downs Cee-Deeing came up with a really fine contest. They did a lot of pre-meet preparation and had a nice big tote board with every event and each contestant posted on it so that it wasn't necessary to inquire how you stood or what your time was. The P.A. system kept everyone notified of every possible need he might have. The field was in excellent shape, the result of many hours of work and the cooperation of the city government. They even had a free flight take-off platform of plywood 16 feet long and four inches off the ground.

The speed events had just been finished

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• Test and break-in stand that clamps engines up to .19 displacement in a few seconds! Made of selected hardwood with adjustable clamps and locking pins. Only **$1.25**

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test and break-in stand. Locks up any engine in a few seconds. Holds it from pulling out while "revving up." **$1.75**

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E-Z-OPEN SMALL PARTS CASE

• Easy-view clear plastic case with 4 compartments with individually opening and latching covers. Prevents mixing parts or spilling entire contents. Size approx. 7" x 2". **50c**

FAMOUS E-Z-JUST PLASTIC CONTROL HANDLES

• Choice of "Standard" 330 lb. test cable leader or "Hot Rock", minimum test 150 lbs. ..... ea. **85c**

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when we arrived, and we were very much surprised to learn that both George Mueller and Jim McElroy had not placed at all.

That Air Force ace, Walt Johnson, and that man from Berino, Charlie Bowman, turned out to be the real hot guys, Walt running firsts in B and C, while Charlie won A and was second in D. Jim Nightingale won D speed with an increase over his last year's run of almost 8 mph to 146. Ed Bollin was second in C, Jim Siebenhaar second in A while Don Sroufe was second in B. That ace of the stunt pilots, Bob Palmer, won his specialty with Don Jacobs close on his heels. In Junior stunt Jim Tysor won first, and Bill Klager second.

In the June Issue of Air Trails:

Air-Model Manual Sketches COVERING AND FINISHING TIPS

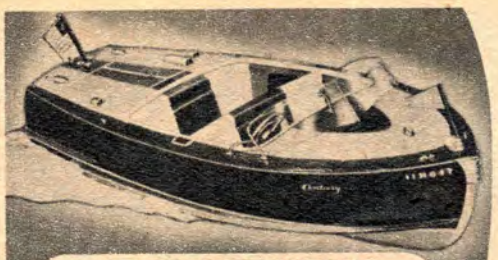
Just what you've been asking for!

The fellows were burning a lot of water in their mixtures this year. George Mueller had some 30% hydrogen peroxide he was mixing, the catalyst of which we didn't discover but will try to give you some dope on next month. This H_2O_2 is a pretty strong solution and will burn skin on contact.

The following day, Sunday, for the free flights was certainly one for the books: only four thermal flights the entire day. Harry Gould hit into one in Class C and won this event. Al St. Clair had a max in towline, Bill Conley in hand launch with Vern Walters also getting an extended flight in this event.

Harry Gould continued his excellent flying to win Open Sweepstakes. At one time during the day he held four first places. He ended up winning A and C, Harry Duick of Phoenix beat him out in B, while Ed Rominger beat him out in Half-A-PAA. Incidentally, "Space Bugs" won first and second in Half-A-PAA. All in all, true to form, Harry has been most consistent, winning three of the last four sweepstakes,

(*Continued on page* 67)



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Kit B-8M • Length 27" • Beam 9¼"

Power Boating • Radio Control • Shelf Model!

• Entire hull exterior of genuine African Mahogany • Embossed and die cut deck • All parts die cut and inter-notched • Plastic windshield • Shaped and die cut seats • Power hardware • Metal bow plate • Detailed, step-by-step plans, covering power-installation, interior detail and radio installation, etc. **$7.95**

(less scale marine fittings)

Deluxe 34-Pc. Scale Marine Fittings, Kit B-8F. $3.95

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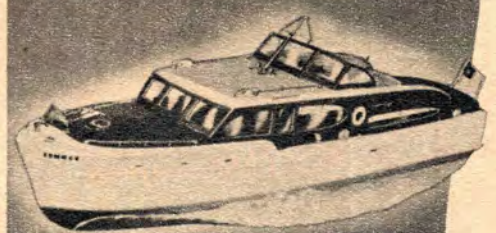
Kit C-8 • Span 32½" • Length 27"

For Class A, B and C Engines

• Full stunt • Optional wing flaps • Completely prefabricated • All parts die cut or shaped • Formed landing gear • Hardware kit • Authentic decal insignia • Completely detailed, simple, step-by-step drawing instructions, etc. **$5.95**



CHRIS-CRAFT 50' CATALINA

Kit B-7M • Length 31¼" • Beam 8⅜"

Power Boating • Radio Control • Shelf Model!

• Genuine African Mahogany used extensively • All parts die cut and inter-notched • Shaped roof structure • Power hardware • Plastic and Mahogany flying bridge windshield • Detailed, step-by-step plans and instructions, covering power-installation, interior detail and radio installation, etc. **$11.95**

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Ring Master	S-1	2.95
F-51 Mustang	S-2	2.95
Yak-9	S-3	2.95
Maverick	D-1	1.00
Space Master Junior	S-4	2.95
Hawk		1.50

Power Boats	Kit	Price
Richardson 27' Cruiser	B-1	2.25
Higgins 17' Speedster	B-2	4.95
Chris-Craft 47' Buccaneer	B-3	7.95
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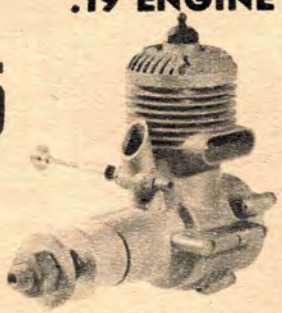
ONLY **$9.95**



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Tiger Fuel Pump

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Forced Feed Piston Type • All Metal Construction
Delivers Fast, Steady Fuel Stream. Fine Copper Screen

No more spilling of costly fuel. No waste or muss. No pouring fuel from can to pump. Get a Tiger Fuel Pump, screw it on any standard fuel can and you're ready to go. Delivers fuel easily, quickly, where you want it, to the last drop.

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NEW! SWAMP BUGGY

KIT E-2 $1.00

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- For use with 1½ volt electric, or ½A gas motor

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¼" SCALE

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KIT S-9

Build it yourself from accurately shaped wooden parts, using the illustrated, easy to follow, instructions. Complete details with vivid three color decals, World War I propeller, formed wire landing gear.

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KIT E-1

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2045-47 TRENTON AVENUE

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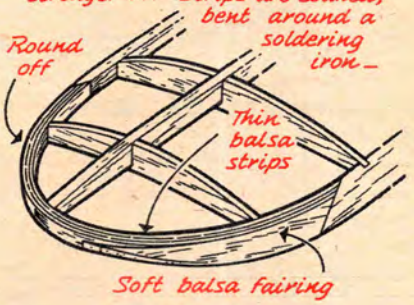
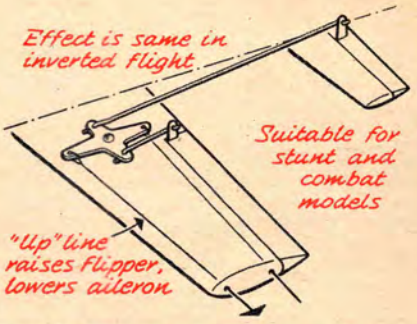
Clarence Mather, rubber model sharpie of Lexington, Ill., prefers laminated wing tips; reports them to be lighter & stronger ... Strips are soaked, bent around a soldering iron—

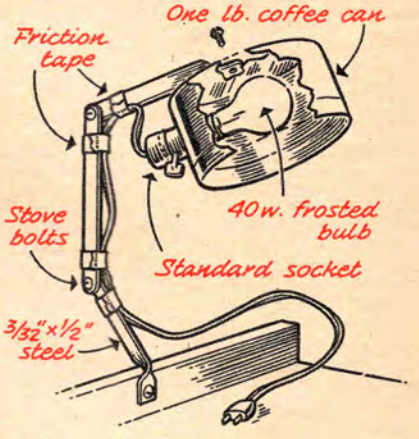




Coupled aileron control prevents inward bank when elevator goes up... designed by Kermit Ekstrom, Ellsworth, Wisc.

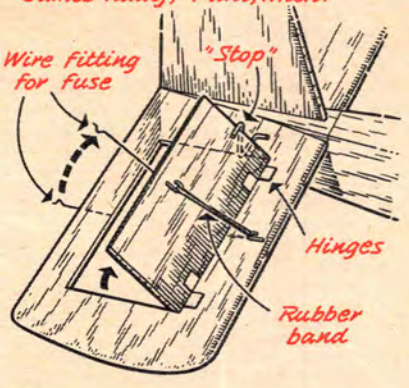
Sketch-book

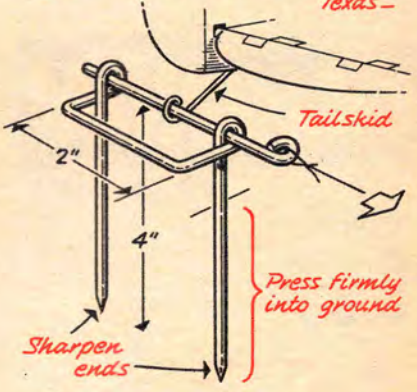
Have you developed something new in construction, control or flying? Send a rough sketch—we'll re-draw it and pay $5 for each accepted. Contributions should be original ideas; we cannot enter into any correspondence on submissions.



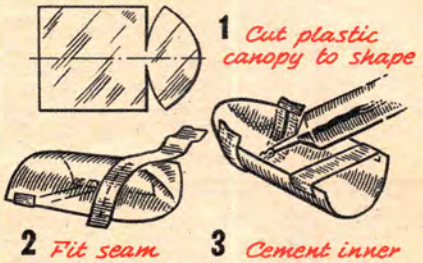
Dandy modelers' lamp by Emmett Jones, Carrizo Springs, Texas—

Inset dethermalizer panel permits fixed tail group for small ships. Submitted by James Kudej, Flint, Mich.

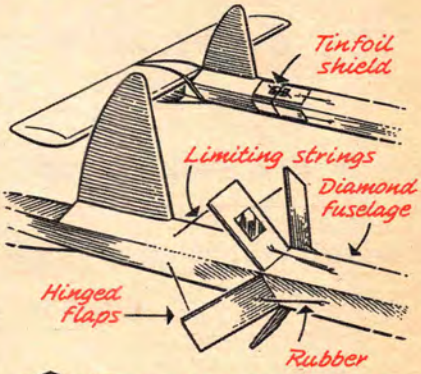




Ultra-simple "stooge" bent from coat hanger— Size variable; pin must fit freely says Gene Mroz, Aurora, Ill.



Simple method of assembling canopy by John Humphrey, Wilmington, Del., employs tape for holding seams during cementing—



"Drogue" type dethermalizer by A/1C David Jones, U.S.A.F.E.— Rubber loop holds flaps flush against fuselage; fuse release.

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GREAT NEW MODELS IN THIS FAMOUS DMECO FAMILY!

THESE ARE SIMPLE TO FLY MODELS, RUGGEDLY BUILT IN THE "LIVE WIRE" TRADITION

KITS CONTAIN...
- Detailed full size plans!
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- Complete deluxe hardware!

MODELS FEATURE...
Sheet balsa fuselage construction and really strong surfaces using large stamped leading and trailing edges with spars. Readily adaptable for use with all engines.

(1) IS THE "CLIPPER"

FOR 1/2A PAA LOAD AND FREEFLIGHT

If you are a beginner in "free flight" or an expert looking for an easy to handle design this realistic looking model is for you! Either for PAA load or regular flight every item of its design is aimed toward superior performance with the least amount of effort. Try this easy to handle "Clipper" now!

-SPECIFICATIONS-
Wing Span: 36" Area: 230 sq. in.
Design Weight: 6 oz.
With "escapement": 11 oz.
Power: Any ½ A engine
Meets all PAA requirements

(2) IS THE "KITTEN"

FOR 1/2A R/C SPORT FLYING

Developed for use with the new compact light weight R/C units the "Kitten" takes every advantage of this fine equipment. The "Kitten" is one model that can be flown in restricted areas, a football field is large enough! Proper design gives the ruggedness and maneuverability for this close area flying, assemble it quickly and enjoy many fine flights!

-SPECIFICATIONS-
Wing Span: 54" Area: 220 sq. in.
Wing Loading: 12 oz./sq. ft.
Design Weight: 8 oz.
With Radio: 12 oz.
Power: Any ½A engine

.08 - .15 ENGINES

"LIVE WIRE" R/C TRAINER

This is the widely accepted basic-trainer for radio controlled flight. Having been developed for R/C flight primarily it has all of the features which can make your every flight successful, including controlled climb, exceptional stability, excellent maneuverability and extreme ruggedness. The construction is simple and straight forward while the model remains easy to fly!

An exclusive feature is the removable R/C unit that allows easy bench checks of all R/C equipment, use of the same unit in several models and alterations or changes in the equipment with the least trouble. Suitable for ALL makes of radios. Copied perhaps, but certainly never equalled!

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All American Sr.

The "Star" of the All American Team is this contest winning "Senior," here is the model that even beginners can fly to first place laurels! The design is the culmination of years of effort to provide a fine high performance model that is simple to assemble, easy to maneuver and a cinch to win for you in any competition! Dmeco's exclusive "Assymetrical Stability" provides the means to such fine performance from a model with so little power.

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✓Check THESE POINTS!

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PRODUCTS OF
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(Continued from page 65)

losing out by only one point at the other meet.

Some of the local fellows really turned it on, though, and showed the Coast boys just what backs looked like when they passed them. Vern Waters turned in one of his better performances, winning Half-A and 2nd in hand launch. Russ Ryan was 2nd in Half-A, Bill Conley won hand launch. Al St. Clair won towline, Dave Nelson was 2nd. In the Junior Half-A event, Leo Carrillo—no, not the movie star—was the winner, followed closely by Eddie Ryan.

Combat was very true to form; from the number of ships which dorked, it was no little miracle that there were any left. This led a spectator to question if the winner was decided by who had a flyable ship left. Sometimes it does lead one on. But, seriously though, this combat flying is tough. Most fellows were using profile jobs which they could build easily, and quite a few of them were hand launching with no landing gear.

The number of damaged models made us wonder about possible weakening of bell-crank supports when a ship does get hit. It might just be enough to allow the model to fly loose during some maneuver. Should a pull test be required before each flight, and don't you think that once a model has been hit, that it should be flagged down? We think so. It only takes one accident to bestow a bad name. This combat is beyond a doubt a spectator attraction. We don't see anyone watching any other flying while the event is taking place. At Tucson, though, they kept the crowd very well in hand, a tribute to their wonderful organization.

A speed champ, George Mueller, waited till Sunday to win something, then of all things, jet. The fellows had a tank of compressed air for starting the jets which was in itself quite an innovation since it allowed these engines to be started very easily. Ed Bollin won second in this very close event. The flying scale event was rather disappointing, with only two entries.

(Continued on page 70)

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ACE "JAGUAR" CAR KIT No. 25R

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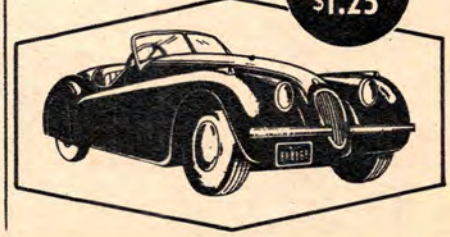

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The CHIEF

The finest of "U" Control planes for smooth precision aerobatic flying. A wing area of 595 sq. in. with full span flaps and a wing span of 52 in. For engines ".29" or ".31" cu. in displ.

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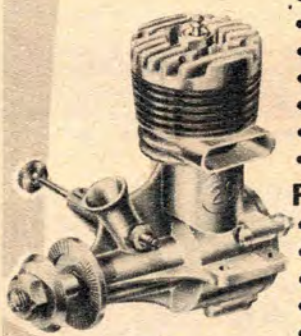

FREE FLIGHT

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- SIOUX
- COMANCHE
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An engine of quality packed with power.

For U control or free-flight use. Economical to operate and built to last.

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Veco control accessories are well known by the experienced modelers as being engineered for the smoothest operation.

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VECO PRODUCTS

HENRY ENGINEERING COMPANY
BURBANK, CALIFORNIA

"AT" Data Dept: Macnabb

■ In designing, producing and selling the radio equipment for the control of model aircraft, it has been necessary to build a number of planes for the purpose of field-testing such equipment. Whereas a radio-control unit may operate reliably on a fixed setup on a bench, conditions of vibration, inertia, the attitude of the plane and many other factors have to be checked, to be sure that the equipment will operate reliably.

By virtue of these experiments and the building of a quantity of planes, the author has reached a number of conclusions on important details which should be incorporated in craft that carry radio control equipment.

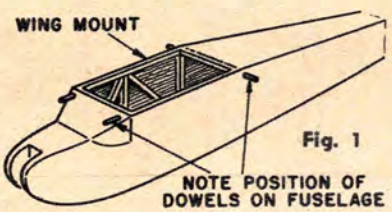


Fig. 1

This is not written to describe a specific plane but to give the modeler who likes to design his own some specific information of what to do as well as what *not* to do.

Fuselage

In making the fuselage for radio-controlled planes, regardless of what radio is used, it is desirable to make the fuselage wide. Even in small planes a minimum of four inches is indicated. This is a departure from the usual fuselages used in free flight where you are interested in low frontal wind resistance; in a radio-controlled plane, however, efficiency is secondary. In fact, when the motor on a radio-controlled plane stops, you want it to come down.

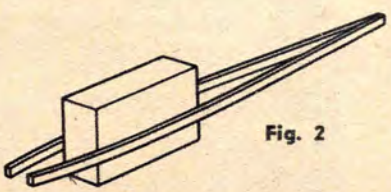


Fig. 2

On three separate occasions, the author had planes with as much as fourteen ounces per square foot wing loading get caught in a thermal, and in one case the craft stayed up for over thirty minutes. If the batteries are old or weak, or there are not too many turns in the escapement rubber, this can be disastrous. Therefore, the wide fuselage probably contributes a little frontal resistance and helps to bring the plane down faster, but it also makes the plane look a lot better. It looks more like a real airplane.

Still more important than any of the above is the fact that it gives you a place to work without being cramped. Even the very small radio-control units are more readily tuned or serviced when you can get your hands in around them. And also from the standpoint of protection of the radio units in case of a crash, the more space you have around the receiver, the more chance you have to add sponge rubber and shock protection.

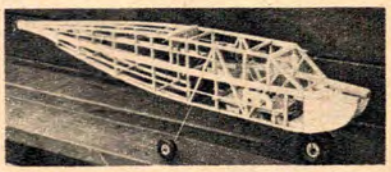


Fig. 3

Since most of the commercial radios require some adjustment from the top, the most desirable arrangement is to have an open top fuselage so that the opening is closed when the wing is put on. (See Fig. 1.) There are several ways to construct this, but it is this area which surrounds the receiver which should be made strongest, and it is satisfactory to concentrate the weight at this point because here is the center of lift.

It is the author's opinion that the most desirable construction is what he terms a "box-crutch" kind in which two strong crutches, running from the motor mount to the stabilizer mount, form the backbone of the fuselage, and inside this crutch is built a strong box to house the receiver. (Fig. 2.)

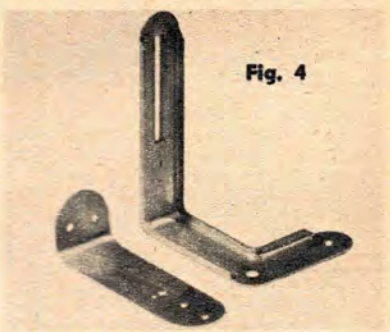


Fig. 4

The "crutch" may be replaced by balsa sheet construction; but if this is made thick enough to be strong, it is more difficult to bend to a blunt front end at the motor mount. Also, there is no point in continuing the heavier construction beyond the radio compartment as this construction back to the stabilizer may be much lighter. (See Photograph, Fig. 3.)

Reduction of weight from the wing mount back also allows a shorter nose and engine moment for proper location of C. G., which adds to stability.

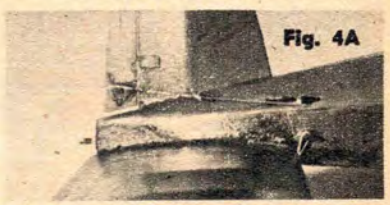
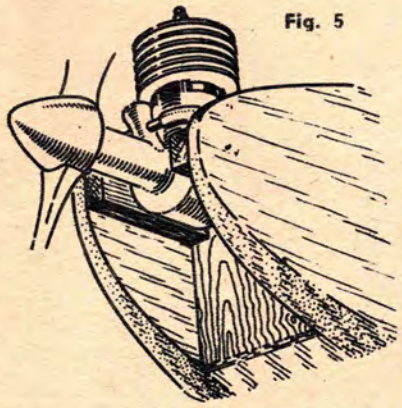


Fig. 4A

The box might very well be removable, containing both batteries and receiver for easy servicing. A bellcrank and rudder horn arrangement is avail-

on R/C DESIGN DETAILS

Fig. 5



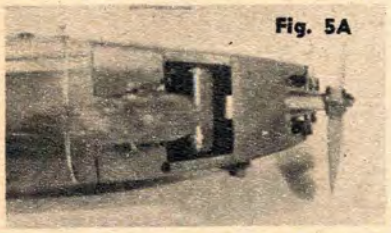
AREA BELOW ENGINE AND FUEL TANK LEFT OPEN FOR DRAINING AND CLEANING.

able which allows the escapement to be put in the same box as the receiver and batteries so the whole unit can be removed. (Photograph 4—Photograph 4A shows wire linkage to the rudder horn in a plane.)

Plywood may be used liberally in the area surrounding the radio, as the weight is not of too much consequence at this point and it gives additional strength and provides a place to anchor battery boxes and to fasten the landing gear. (A discussion of types of landing gear comes later.)

In the photograph shown (Fig. 3), the motor mount is in a piece of rather large plywood which is glued into the crutches, and this gives extra strength.

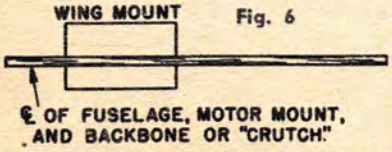
Fig. 5A



It is recommended that big, husky pieces of hardwood be used for mounting the motor so that a crash does not crack this wood. In providing for the motor mount, do not place the motor or the fuel tank in a position where the oil or gasoline cannot be drained out, or washed out through an opening in the bottom. (See Photograph 5A and Fig. 5.)

In mounting the engine, do not depend on wood screws, or do not depend

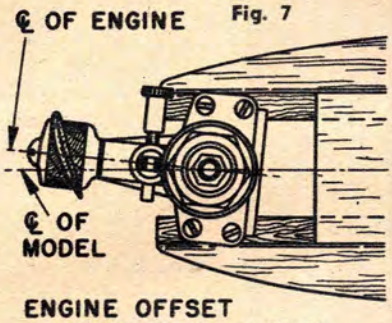
Fig. 6



on bolts with their heads bearing on the wood. Obtain a piece of metal and drill holes through the metal the same distance as the mounting holes of the engine and solder the heads of the bolts into this piece of metal, which serves the double purpose of preventing the bolts from turning and also providing a large bearing surface for the mounting bolts on the under side of the mounting strips. In case of a crash, these bolts may bend and have to be replaced, but if wood screws are used they will pull out and there is no way to refasten the engine into the mounting strips.

In laying out the shape of the fuselage, it is the author's opinion that the wing mount should be parallel with the main center line of the fuselage (Fig. 6) for the following reasons: When the motor has stopped and the plane is coming down, the wing assumes a slight positive incidence

Fig. 7



ENGINE OFFSET (VIEWED FROM ABOVE)

which causes the fuselage to be flying almost parallel to the ground and come in for what looks like a three-point landing in the case of the two front wheel landing type gear, or if a tricycle landing gear is used, all three wheels seem to settle down and touch simultaneously.

If considerable positive incidence is built into the wing mount, it means that the plane comes in at an acute angle to the ground, and in the case of a tricycle landing gear particularly, the front wheel takes quite a beating.

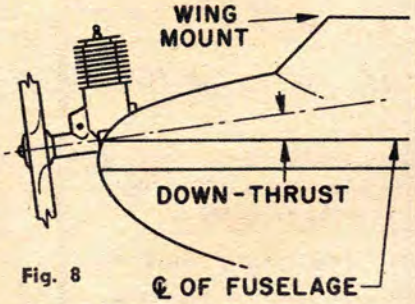


Fig. 8

In preparing the motor mount, be sure to make provisions for offset to the right. (Fig. 7.) The amount cannot be determined until the plane is flown, but it will *always* be needed. The reasons are these: The torque of the propeller tends to make the plane itself rotate in the opposite direction and depress the left wing when looking at the plane going away from you. This makes the plane turn to the left because of motor torque. Yet, when the motor stops and this torque is removed, it will glide straight, assuming it has been so adjusted.

(*Continued on page* 72)

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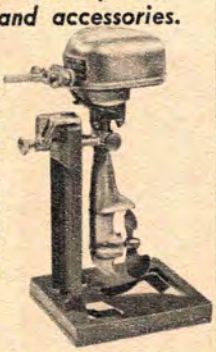

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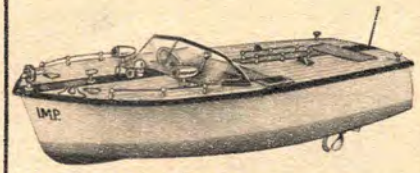

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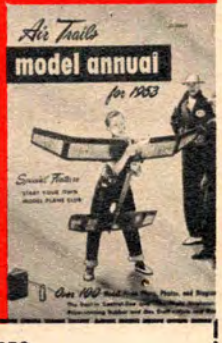

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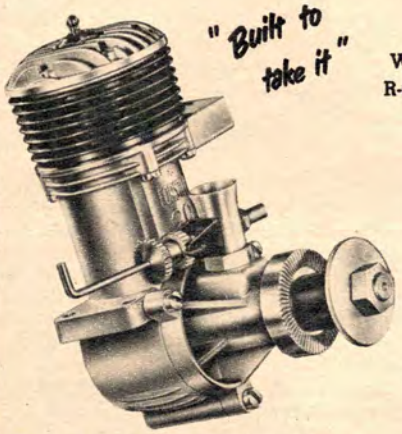

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(*Continued from page 67*)

Bob Ritz, however, had his very nice SBD-5 carrier deck model there and romped off with first.

Something entirely new in the way of contests was to be held at Santa Ynez by the Santa Barbara Modelers. Stan Hill of Amazon fame was scheduled to be the "Cee-Dee" and it was called "Omnimeet," their first Annual. Something for everybody. All events combined, F/F gas, Nordic and limited towline, Wakefield and limited rubber all competing against one another. Trophies for sweepstakes, trophies for 1st, 2nd, and 3rd high times, with separate mugs for high time with Wakefield, Nordic and the International power models. All models, though, flown with a six-minute limit.

We can't help but comment on a model which Ced Galloway started years ago. Jim Devitt was telling us about it. Seems Ced started building a F3F-3. Anyone who has ever seen any of his models will appreciate this, for Ced really goes in for detail. He worked a long time and finally perfected a hydraulically retracting landing gear. This has kept him so fascinated, though, that every time he started to work, he played with this landing gear. The result—the mechanism is worn out and the model still not finished. How about that?

—DICK EVERETT

"Mac II"

(*Continued from page 35*)

was to decide what tube setup could be used to generate the necessary RF power. Since this was to be a deluxe rig, we spent some time investigating MOPA arrangements (this means master oscillator, power amplifier—the usual single tube and crystal being the oscillator). They worked, but we came up against the sad fact that the tube companies haven't

done too well by us in the line of good 1.5 V. filament amplifier tubes. None of the usual tubes which will handle 5 watts input, will operate without neutralization. This is just an added nuisance, so we returned to the crystal oscillator.

Further construction details will be found on the "AT" full-size plan.

Parts List

V1, V2—3D6/1299 tubes. C1—throughout 15 mmf. trimmer condenser. C2—50 mmf. trimmer condenser. C3, C4—.001 mf. mica or ceramic condensers. R1—47,000 ohm ½ W. carbon resistor. R2—2,200 ohm ½ W. carbon resistor. R6—47,000 ohm, 2 W carbon. R7—1 ohm, 1 W. wirewound resistor. Meter—0-50 ma., 2" diameter. P.L.—2 V. pilot lamp and socket. Xtal—27.255 mc. crystal. 1—socket for preceding. 2—loctal sockets. 1—two prong socket (for glow plug leads). 2—Antenna insulators. 1—Antenna, 10 ft. long. 1—Surplus PE-157 power supply with vibrator (Fair Radio Sales, Lima, O., $4.95). 1—Surplus Willard BB-54 2 V. storage cell ($2.95 at same concern). SW2—SPST toggle switch. SW2—Heavy duty DPST toggle switch (both sides connected in parallel).

Plug, and keying leads as desired.

Condenser knobs and one dial.

Parts on circuit diagram that are circled come in PE 157; part numbers are those to be found on circuit diagram in power supply case. Kit of parts for everything needed except power supply and storage cell may be had from several of our advertisers; some advertisers have all the needed equipment.

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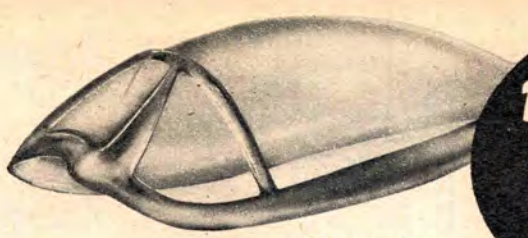

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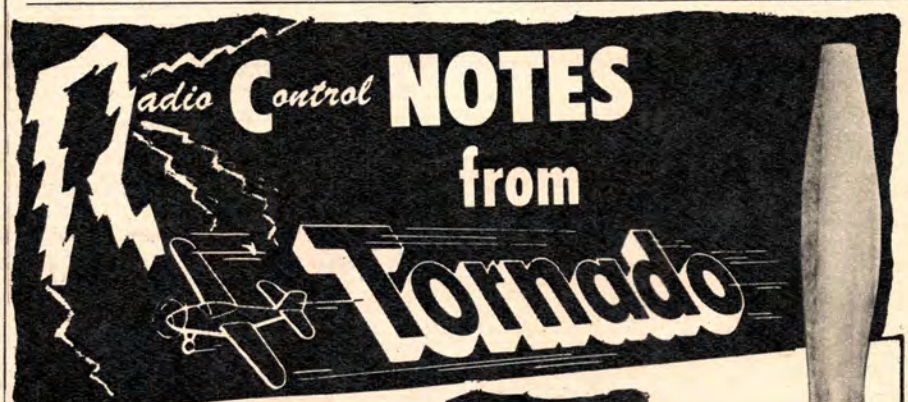

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Macnabb on R/C

(*Continued from page* 69)

It is, therefore, necessary to offset the motor to the right to overcome this turning torque to the left.

Also, with the arrangement just mentioned of the wing parallel to the main center line of the fuselage, it may be found that the plane has a tendency to stall under power after it has been adjusted for a flat glide. (A flat guide can generally be accomplished by changing the incidence of the elevator; more negative to hold the nose up, more positive to bring it down faster. The C.G. location is discussed at the end of this series.) Consequently, it will be necessary to put some downthrust (Fig. 8) on the engine, and provisions should be made for this in the original design.

There is much pro and con on the subject of landing gears. When a plane comes in properly, a tricycle gear gives a beautiful straight line landing. But if a plane comes in poorly—for instance, if the engine dies on a hand launch—it seems impossible to make a sufficiently strong structure for the single front wheel of a tricycle landing gear to take the bump without bending. We will consider the landing gear in detail in a subsequent issue.

—VERNON C. MACNABB

C. A. P.

(*Continued from page* 52)

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and Bugle Corps, New York Wing, CAP —took top honors in its division in President Eisenhower's Inaugural Parade. The judges declared the CAP units tops in non-service drum and bugle corps. In competition against CAP were 15 of the nation's leading drum and bugle corps. Among them were state, regional and national champs.

Arrangements are being made for a formal presentation of the silver cup later. Capt. Charles A. Williamson Sr. of Newburgh, N. Y., is commanding officer of the unit which is part of the Orange County Group commanded by Lt. Col. Wynant C. Farr.

Exchange Grows. Two more nations have been added to the list of those who participate in Civil Air Patrol's International Cadet Exchange which goes into its sixth year this summer. On July 19 cadets representing the 48 states and the territories of Hawaii, Alaska, Puerto Rico and the District of Columbia will leave the United States for visits in Belgium, Brazil, Canada, Denmark, France, Italy, Mexico, Holland, Norway, Portugal, Spain, Sweden, Switzerland, Great Britain, Luxembourg, Turkey and Greece. The latter two were added this year.

While these American youths are acting as ambassadors of goodwill, their foreign counterparts will visit this country as guests of CAP.

For the New American Limited Rubber Powered Event:

THE BOSTONIAN

By Ed Dolby & the New England Wakefield Group

See it in the June Issue of Air Trails!

Be Smart

If you fly *control line* models, don't stand within 500 feet of any power, phone or light lines!

If you fly *free flight* models, don't permit autos or spectators within 500 feet of your take-off site!

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for Jetex #50 jet engine

McDONNELL F88A "VOODOO"

Here it is . . . a true scale model jet! Powered by the Jetex #50 engine, this sensational model provides thrilling realism and outstanding performance. Kit includes all balsa, die-cut parts and features exclusive AEROFORMED construction for quick, easy, strong assembly. 13" span, 15½" length; weight—less engine—under 1 oz. With Air Force decals and exploded view plans. Price **$1.25.**

NEW! AEROFORMED CONSTRUCTION

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An entirely new approach to model airplane design. Aeroformed construction gives you a completely shaped, all balsa, three-dimensional fuselage. Assembly is remarkably easy and quick. No tissue covering or fragile stringers are used. Aeroformed construction provides exceptional strength combined with amazingly low weight. *Ask your dealer to show you this new development.*

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15 Fifteen Famous Fighters 15

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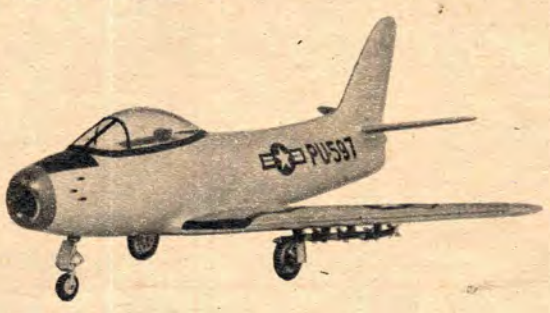
Every little detail visible in the actual airplane, every single item that can be reproduced is given to you.

Jam-packed with metal castings (47 in the P-38 Lightning), these kits are the choice of the best model builders everywhere. See them at your dealers — and, although there is no real comparison, *compare them* with any other kit available.



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F-84 Thunderjet	2.75	F9F Panther	2.75

FW-190 Focke Wulf	$2.75	P-51 Mustang	$2.75	P-47 Thunderbolt	$2.95
P-40 Warhawk	2.75	F6F Hellcat	2.75	P-38 Lightning	3.50
F4U Corsair	2.75	F8F Bearcat	2.75	British Spitfire	2.75
		ME-109 Messerschmitt	2.75		

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Complete with engine $9.75
Without engine 3.50

A-J AIRCRAFT CO.
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SHOWCASE:

Model Men

■ **Each year the men who manufacture the kits from which you make your models journey to a great model industry trade show to show their wares—just like the pieman of yesteryear. Figuring you may have wondered what some of these folk looked like, this year the "AT" camera went along too. We managed to catch most of these who displayed their kit models, engines or accessories, although we did miss a few. This roundup which surplants the usual Showcase items found here will give an indication of what's ahead.**

Lew Mahieu of K&B admires his Half-A "Flying Kiwi" design. With .049 Torp weighs 5 oz.; 35" span; 27" length; 200 sq. in.; $2.50.

X-acto's Sundel Doniger with that firm's new Aero-field kit (#73). The large assortment is $17.50. Has all manner of needed tools.

This is Anthony Grish, noted speed king, with his new 30¢ Tornado Plasticote 10" prop available in 3, 4, 5, 6 and 8" pitches.

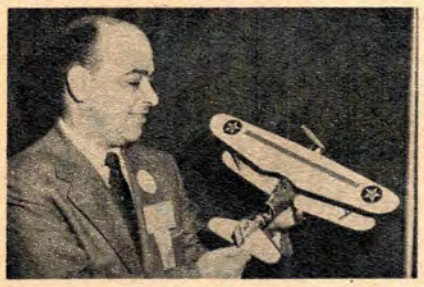
Charles Brebeck (Sr.) of Herkimer Tool & Model Works with new OK .06 cu. in. (1 cc.) Cub diesel engine. Ht., 2⅝ in.; wt., 1⅝ in.

Ace's Gordon Babb with outfit's new Jaguar car in kit form for $1.25; 7½ in. overall. Pre-fabbed, plastic parts, rubber wheels.

Dr. Eugene Rodin of Helicopters for Industry with detailed, plastic model of Sikorsky S-55 rescue 'copter Rotor 15"; $2.49 with stand.

"Gentleman Jim" Walker of A-J (American Junior) Aircraft and his "Firebaby" Bi-plane supercharged engine, ready to fly, $9.75.

L. M. Cox of Santa Ana, Calif., with ready-to-fly TD-1 model. Powered by Space Bug engine. Spans 24"; 120 sq. in. area; 10 oz.

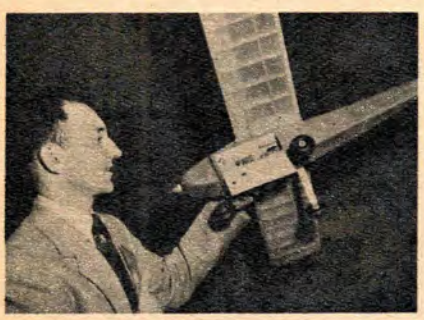


Scientific's "be specific" man, John Frisoli, with Curtiss Hawk P6E, prefabbed, 18" wing-span, 11" length, alum. cowl, etc., $2.95.

Al Gasdia of Allyn Sales Co. admires new Convair delta interceptor XF-92A available in "assembly" kit, $2.49, base included.

Carl Goldberg of Top-Flite Models with new MiG-15 Jigtime Jet. Pre-fabbed, interlock construction, catapult launch to Mach .99.

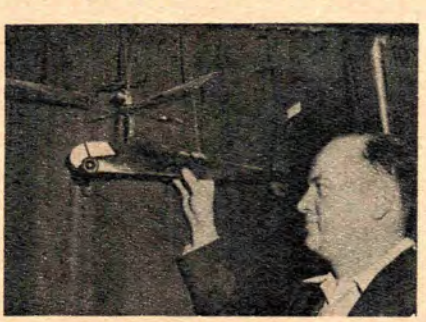
Bill Atwood, the Marvel of Microfilm, with his new .051. For $6.50: prop, wrench, g.p., clip, F/F tank, U/C back cover & motor.



Vincent Serio of North American Model Products, Warwick, Va. This is "Guided Mite" R/C kit which was under test 2 yrs.

Dyna-Models' Percy Kemp and his F-84 Thunderjet scale model. Highly detailed, 10¼" span, ⅛ inch the foot, 9½" length.

All the way from California! Randall E. Froom with his new two-speed motor control tanks which are just fine for radio control.



"Boikley Bill" Effinger of Berkeley Models and the unique $2.95 Half-A powered Cloud-Copter. Overall, it's 22"; 28" vane.

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40" WILEY POST'S "WINNIE MAE" MONOPLANE
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30" BOEING F4B FIGHTER (P-12 DATA ALSO)
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25" F9C-2 "SPARROWHAWK" FIGHTER BIPE
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22" KNIGHT TWISTER - FAMOUS LIGHT BIPE
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24" STEVE WITTMAN'S "BONZO" MID-WING
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E-Z-TO BUILD "STRUCT-O-SPEED"

KIT NO. M8—GRUMMAN COUGAR F9F-6—Wingspan 12⅛"; swept-wing Navy jet, in the "over 600 mph" class. Like all "M" kits, this model has shaped all-balsa Holl-O-Wing, finished plastic parts, bubble canopies. Realistic decals, easy plans—pre-fabed all the way!

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Frontier EARLY WESTERN MODEL KITS

IN THE RED AND YELLOW BOXES!

BEER WAGON

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$1.50

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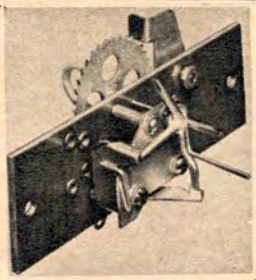

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A self neutralizing, four position, speed regulated control unit . . . No sequence to worry with! Practical, foolproof. Designed for operation with any single channel radio control while duplicating performance of three channel control. No extra batteries or channels needed.

Wt. 0.8 oz.—⅛ Rubber Drive.
3 V. Coil—1" x 3" Mtg. Plate

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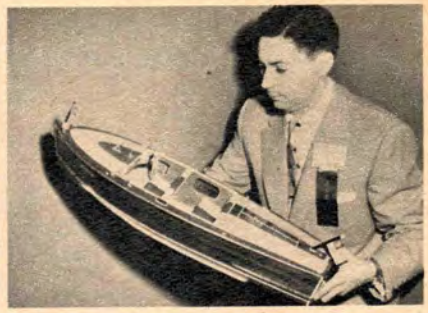
Lewis Glaser of Revell wearing his new Merry Oldsmobile Bakery Wagon as a boutonniere. This is ⅜" to foot scale, Series #3.



Ed Manulkin of Sterling Models with firm's Century Sea Maid "20" scale model boat; length is 27", 9¼" beam, pre-fabbed, $7.95.

Harold deBolt of Dmeco (deBolt Model Eng. Co.) with his Half-A F/F and PAA-Load "Clipper"; 34" span, 26" length, 220 sq. in.

Richard Mates of Hawk Model Co. with his new MiG-15 all-plastic detailed scale model; 69¢. 7½" span, all ready to assemble.

Comet Model Hobbycraft's Morris Shamberg with $1 F-51 fighter flying model of 15 inch span. Pre-fabbed, plastic details.

Wen-Mac's Leonard McRoskey with new Automite $10.95 car. Price includes .049 Wen-Mac engine, alum. disc wheels, bridle.

Bob Reder of Monogram Models and new Speedee-Bilt F9F Panther which sells for $1. Spans 13½", prefabbed, plastic details.

Ross Guillow of Wakefield, Mass., with the new Guillow 25¢ MiG-15 flying scale model. Uses rubber and prop. Span, 9".

F-B Model Aircraft's Dick Newman with "Jag" XK120 model, 1/25th scale. $1.49 kit has balsa, metal and plastic parts; 7¾".

Enterprise Model Aircraft & Supply Co.'s Jerry Brofman with "Tow-Liner", 24" span, 1.5 oz., prefabricated $1 towline glider.

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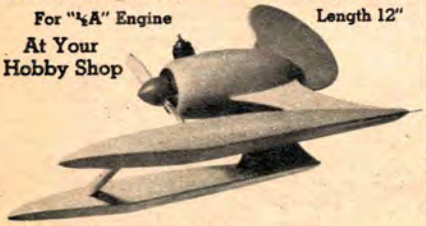
It's Terrific!

THE DOODLE BUG **$1.98**

For "¼A" Engine — Length 12"

At Your Hobby Shop



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Easy to assemble with self aligning slots
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Add 15c to cover handling

CONTEST CALENDAR

List meets here! Advise Air Trails 90 days in advance to do the most good for your meet. If any area restrictions on entries, be sure to state. Address of contact man in same city as site of meet unless otherwise specified. Where info on events is furnished these are abbreviated as follows: indoor rubber powered—IR; outdoor rubber powered (unlimited) ORU; outdoor hand launched gliders—OHLG; indoor glider—IG; towline gliders—TL; free flight gas—FF; control line speed—SP; control line scale CLSC; control line stunt—ST; team racing—TR; combat—COM; radio control—RC; rise-off-water free flight—ROW; carrier models—CAR; free flight scale—FFSC; non-flying exhibition scale—NFSC; jet speed—J; controline endurance—CLEND; Wakefield—WAK.

April 12—Bakersfield, Cal. Gas Modelers meet. Francis Stewart, 900-21st St.

April 19—Albuquerque, N.M. S.A.K.M.A.C. record trials. J. B. Cahill, 205 Bryn Mawr Dr., S.E.

April 26—Rock Island, Ill. R.M.A.C. Beauty contest. Larry Dickinson, 1536-42nd St.

May 3—Milwaukee, Wisc. Flying Electrons RC meet. V. R. Weissbrodt, 2100 E. Webster Pl.

May 3—Livermore, Calif. Oakland Cloud Dusters Half-A F/F team contest. Hal Roth, 2224 Grant St., Berkeley 3, Calif.

May 16-17—Los Angeles. Third Pacific Coast Championships. R. E. Moncrieff, 2108 Santa Fe Ave., Torrance.

May 17—Denver, Colo. Third Ringmasters meet. ST, SP, CLSC, COM, J. Hobby Center, 7014 E. Colfax.

May 30—Galesburg, Ill. G.M.A.C. TR meet. Ken Freese, 224 Silver St.

May 30-31—Boston, Mass. 7th Annual Plymouth meet.

May 30-31—Marysville, Calif. 4th Exchange Club meet. Twin Cities MAC, Box 91.

May 30-31—Scottsbluff, Neb. Peanut Pilots meet. C. H. Adkins, 2017 Broadway.

May 30-31—Marysville, Calif. 4th Exchange Club meet. L. C. Armstrong, 229 R St., Yuba City.

May 31—Easton, Pa. FF; COM; J; SP; TR. Joe Groman, RD #2.

June 7—Hicksville, L. I. Ninth Skyscraper meet. Robert Walters, 48-56 44th St., Woodside, N. Y.

June 7—Albuquerque, N. M. S.A.K.M.A.C. record trials. J. B. Cahill, 205 Byrn Mawr Dr., S. E.

June 14—Rock Island, Ill. R.I.M.A.C. Air Derby; 25-mi. endurance contest. Larry Dickinson, 1536-42nd St.

June 14—San Dimas, Cal. Hi Tailers hydro meet. Russ Johnson, 344 Duane Ave., San Gabriel.

June 14—Modesto, Cal. Flying Circus Meet.

June 21—Greenfield, Mass. Kiwanis Meet. B. H. Williams, 27 Southampton Rd., Westfield.

June 21—Johnsville, Pa. Phila. Plymouth Dealers' meet.

June 27-28—Beaumont, Texas. Exchange Club meet (AAA). ORU; FF; SP; CLSC; ST; COM; J; RC. Don Stijl, 790 Liberty Ave.

June 28—Hicksville, L. I., N. Y. Aeronuts meet (AAA). S. S. November, 593 Lenox Rd., Brooklyn, N. Y.

June 28—Cleveland, Ohio. Lake Erie G.M.C. FFSC. J. W. Grega, 10422 Gay Ave.

July 12—Salt Lake City, Utah. Active Modelers' annual meet. J. P. Yardley, 2636 S. 15 East.

July 12—Lexington, Ky. Exchange & Blue Grass MAC State Meet. C. A. King, 367 E. Main.

July 19—Newark, Cal. Model Busters meet.

July 27-Aug. 2—Lakehurst, N. J. & Willow Grove, Pa. 22nd National Championship Contest. A.M.A., 1025 Conn. Ave., N.W., Wash. 6, D. C.

Aug. 1-3—Cranfield, England, Lord Wakefield, FNA Cup and F.A.I. FF competitions.

Aug. 9—DeKalb, Ill. Cloud Dusters' annual Flying Circus. Dutch Hess, 137½ E. Lincoln.

(*Continued on next page*)

33⅓% TRADE-IN ALLOWANCE

For your old motor in running condition! **30%** allowance if damaged or incomplete! One trade-in (any make) accepted on each new motor ordered.

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Bluestreak 65	$23.90
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Forster F 29	14.25
Forster F 31	14.25
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Fox 35	14.95
Fox 59	29.95
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K&B 049	6.75
K&B 19	13.95
K&B 29	15.95
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McCoy 049	5.95
McCoy 09	7.95
McCoy 19	9.95
McCoy 29	11.95
Ohlsson 23	11.95
Ohlsson 29	13.95
Ohlsson 33	$13.95
Ohlsson 60	13.95
O.K. Cub 039	4.95
O.K. Cub 049	5.25
O.K. Cub 049x	6.25
O.K. Cub 074	5.95
O.K. Cub 099	6.95
O.K. Cub 14	8.95
OS 29	14.95
Royal Baby Spitfire 049	4.95
Royal Spitfire 065	7.95
Space Bug 049	6.95
Wasp U.C. 049	6.50
Wasp F.F. 049	6.75
Wen Mac 049	6.95

IGN. MOTORS

Bluestreak 65	25.90
Elf Twin 198	24.50
Elf Four 396	49.50
Orwick 29	21.50
Orwick 64	27.50
Spitfire 645	24.95

FREE! Matched Propellers Included Absolutely Free With Every New Motor Purchased at the Full Regular price.

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At last! The new Vernon C. MacNabb citizen-ship crystal controlled R/C for 27.255 kc frequency. Transmitter, receiver and escapement, complete with tubes: **$74.65**

FREE! Brand new Fox 35 (new model, regular $14.95 value) plus matched Propeller included Absolutely Free with purchase of any R/C transmitter, receiver, escapement and tubes. All R/C in stock.

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COMPLETELY PRE-FABRICATED
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WINGSPAN — 20"
the "SPITTIN' IMAGE" SPITFIRE
WINGSPAN — 20"
the "SPITTIN' IMAGE" CURTISS P-40F

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for PLANES TRAINS BOATS

Precisely meets the needs of the Hobbyist for a Model Radio Control Device that is—
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Operates on 27.255 Megacycles. Uses one 3A4 tube. Surprisingly wide control with only 2.75 watts power input. Sturdy metal cabinet 9x6x5" with battery space. 3½ lbs. less batteries. No. RC222T Model Control Transmitter Kit, less batteries..... **$33.50**

The RECEIVER

Marvelously compact, 2⅞"x1⅛"x 1¾" overall. Weighs only 3½ ounces. Complete step-by-step instructions with pictorial and schematic diagrams included. No. RC222R Model Control Receiver Kit, less batteries **$26.50**

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Optional equipment, completely wired for receiver **$5.50**

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"Pioneer Mfrs. of Electronic Kits Since 1921"

Aug. 9—Cleveland, Ohio. Lake Erie GMC A/2 FF meet. J. W. Grega, 10422 Gay Ave.

Aug. 17—Albuquerque, N.M. S.A.K.M.A.C. record trials. J. B. Cahill, 205 Bryn Mawr Dr., S.E.

Aug. 23—Bridgeport, Conn. Aeronuts FF meet. William Wargo, 47 Cardinal St.

Aug. 30—Brooklyn, N. Y.—Mirror Model Flying Fair at Floyd Bennett N.A.S. Daily Mirror, East 45th St., N.Y.C.

Sept. 7—Far Hills, N. J. Bedminster-Far Hills Meet.

Sept. 20—Harrisburg, Pa. Penna. State Exchange Clubs' meet.

Sept. 21—Albuquerque, N.M. S.A.K.M.A.C. record trials. J. B. Cahill, 205 Bryn Mawr Dr., S.E.

(See also contest mentions in Dope Can, R/C and Western Roundup columns.)

Dope Can

(*Continued from page 54*)

Plug for the Pre-fab Era. Came across an interesting comment in one of the Model Industry Association trade bulletins by Jack "Speedee-Bilt" Besser, president of Monogram Models and newly elected chairman of the MIA's Model Aviation Committee. Jack was asked to comment on the question as to whether the pre-fabbed plane kits and the all-plastic assembly sets weren't putting model planes in the class of toys. Briefs from the Besser reply:

"Certainly present day kits contain innovations in design and simplicity in construction, but exclusive of the all plastic models, there is still work left to be done by the hobbyist. The degree of workmanship depends upon the time and ability of the individual . . .

"If prefabrication has done anything to our industry, it has helped in its maturity. It has created new customers. It has made a more permanent, satisfied customer out of a lukewarm enthusiast. The all-plastic kits, which are simple to assemble, help rather than hurt the industry. They develop customers for our products who might never before have been bitten by the hobby bug without first starting with an embryonic project.

"Today there are kits for all classes of skill—beginners, yes. There are simple, easy to assemble kits or gliders. More advanced—how about detailed scale airplane

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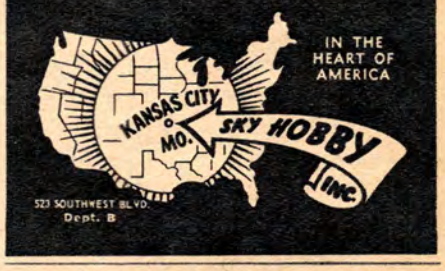

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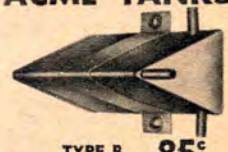

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AIR TRAILS Hobby Shop Directory

Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

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Nationally advertised model planes, boats, trains, kits and supplies
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Everything for model airplane builders. Accessories our specialty. Engines, parts and service. Everything in Air Trails.

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models or ships or crafts? Professionals—control line models, or radio control—railroads, if you please, or even kits that you can start from scratch.

"A decade ago, we didn't have this variety, and it was better than 13 to 5 that the customer wouldn't finish what he started. Today, the odds are reversed, and then some . . ."

You and me—as "the customer"—can sure back up J.B.'s words—right? Certainly we are seeing a lot more kits finished today than ever before. And as for the flying type—why, a lot more get in the air than did 10 years, 12 years or 15 years back.

Ladies' Auxiliary, Hey? We hear from Leon C. Bray, advisor to the Polar Buzz Bugs of North St. Paul, Minn. The more than 50 members of the PBB figure it's the largest in the State of Minn.; certainly we're in no location to argue. Officers are Duanne Anderson, president; Jim Baltes, veep; Bill Hilpisch, sec.; and Len Riley, who handles all the money matters. The Bugs boast a Ladies' Auxiliary which assists in many of the club's activities, not the least of which is the annual winter contest held on White Bear Lake in conjunction with the St. Paul Winter Carnival Fishing Contest. Free flight, control line, towline and H/L glider. Held the previous winter, the R.O.I. (rise-off-ice) competition was a real slick deal.

Contact Mr. G. of the PBB at 2300 Gall Avenue East, North St. Paul 9.

What Writing! Wish our overseas friends would write so's we could read their communications. Had a tough time with Mr. Caay's, but finally figured he's lonesome for some U.S. pen-and-balsa pals. This gentleman is a member of the managing committee of the Royal Dutch Aero Club and president of the Aeromodeling section of the R.D.A.C. In addition to all that he's chairman of the Hague MAC so hez in constant contact with the cream of Dutch aeromodelers. Sounds like a wonderful guy to know. Handles English quite well, but that penmanship . . . ! We decipher the vital statistics as: Y. v. d. Caay, 217B Abrikoxenbr, den Haag, Holland. Since that doesn't look too perfect you'd better mention in lower left corner, "President, Aeromodeling Section, Royal Dutch Aero Club."

Calling All Continental Modelers. Warren Jackson is this young man's name; write him at 313 Egan St., Denton, Texas. Sure that's in the U.S.A. Pay no attention to those Americans you run into who talk about the Texas Army, the Texas Air Force or the Texas Navy. 'Tain't so! Says Warren: "I'd like to get in touch with foreign fans who are interested in small speed and scale planes and gliders of all types. I've a few plans and a lot of magazines I'd like to trade (the magazines are mostly Air Trails). Any age, type or nationality—and the more the merrier."

Model Air Circus. Any you boys been to the big Plymouth meet in Detroit? Ever meet the head stunt judge? Tough hombre, isn't he? Really, though, he's a nice chap. Just bends over backwards to make sure everybody gets the same deal—plays no favorites. Some folks get the idea he's a mean, low-down critter with no love for modeling—that is, until they see him go out and fly helter-skelter, hot-and-low with the Barnstormers Model Air Circus. No visitor to the Plymouth party can ever forget those demonstrations on the last day of the meet that Walt Stevenson, the head stunt judge, and his club buddies put on.

"Slim" Stevenson reveals that the Circus is going to undertake a new project promoting Class C Continental-Goodyear racers with wingspans of 40 inches. Models will be completely scaled, and if you know this crowd you'd know that means real scale stuff. Circus members have been writing to owners of the full-size racing craft securing complete details and color schemes. All this so the "3-foot-4" jobs will be real faithful copies. Speed dashes with 5 ships at a time should really make the spectators sit up and scream.

CO_2 Conscious. D. G. Ogden, 3034 3rd Ave.,

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Shows 2000 to 15,000 r.p.m. instantly!

Simply rest Vibra-Tak's bullet nose on the plane wing or other part where vibration can be felt. Slide indicator along scale until steel reed begins to vibrate. When reed shows maximum throw, stop indicator and take reading.

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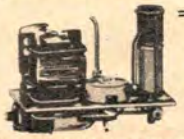
Yes, you can now save over $7.00 on this combination deal. Nothing else to buy except batteries . . .

"Super Aerotrol" 27mc, Crystal Controlled
TRANSMITTER
—Operate and Maintain Yourself!

• Portable — Self contained — No separate antenna — No external Batteries! 3.5 lbs.

ASSEMBLED UNIT $27.95
With tube — less batteries

IN KIT FORM:
Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included. $19.95



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1953 INTERNATIONAL COMPETITION PROGRAM

1. Wakefield—Rules the same as 1952, except team now limited to 4 men.

2. The F.N.A. Cup—Wakefield models flown to determine top team performance.

3. F.A.I. Free Flight Gas Competition —team of 4 men.

Place: Cranfield, England—The site of the 1949 Wakefield finals.

Date: August 1st to 3rd.

Details: Your Wakefield committee has been expanded to the International Competition Committee and will establish eliminations for F.A.I. gas as well as Wakefield. The committee is actively engaged in acquiring money to send 8 men (two teams) to England. *Your* contribution and your club's help needed. Act now! Send your bucks marked "International Competition" to: Academy of Model Aeronautics, 1025 Connecticut Ave., Washington 6, D. C. They won't be used for anything else.

Basically the Wakefield will be run the same as last year. However, there will be four Semi-Finals and one team member chosen at each. Write your nearest Committee member for details. They will be published as soon as possible, however.

F.A.I. Gas will be run along with the Wakefield eliminations on equal footing.

Note: If you feel you have enough interest in your locality to get 15 competitors in one or both events, send a petition to your closest committee member.

Elimination Date: June 14. *Semi-Final Date:* June 28. Semi-Finals will in all cases include F.A.I. Gas and Wakefield.

Rules:

F.A.I. Gas: Displacement—.1525 cu. in. max. Power loading—115.65 oz./cu. in. min. Surface loading (wing & tail total) —2.75 ozs./100 sq. ins. Cross section—Total area/80. Take-off—3 points unassisted. Engine run—20 seconds.

Wakefield: Total area (wing and tail—263.5 sq. ins. to 294.5 sq. ins. Min. cross section—10.075 sq. ins. Minimum total weight—8.112 ozs. Rubber power. Take-off—3 points unassisted.

Important: We have a package deal for interested modelers who will solicit funds to promote these competitions. Write your chairman now!

International Competition Committee:
Edward Lidgard, Chmn, 814 Bryan, South Bend, Ind. William Fletcher, 8708 Grand Ave., Elmhurst 73, N. Y. Peter Vacco, Route 1, Box 312EE, Grayslake, Ill. Dick Everett, 2133 S. San Antonio Ave., Pomona, Calif.

Bronx 55, NYC, is seeking (1) a Campus CO_2 engine and (2) pen pals interested in scale free flight and CO_2 powered craft.

Inside Scoop. You just gotta start reading that CCAMA News. Looka what we gleaned from the last issue: Carl Wheeley is "assistant executive director of the AMA"; wonderful, CW, we only wish HQ would tell us about these things . . . a Model Airplane Olympics including all categories of model flying is "in the works"; yipee . . . the 7th Annual Beantown Plymouth contest with all outdoor events is scheduled for Boston on May 30; John Ross will ceedee—his address is 23 Lantern Lane, Wellesley Hills, Mass. And from the woman's page:

"Serving peanut butter sandwiches three times a day was working beautifully until my hubby hid a couple of tubes from the TV. Then we called a truce. 'Course I have to take it easy. My spouse paid the minister $5 extra to insert 'love, honor and cherish model airplanes' in the marriage vows."

Connecticut, thou art killing me.

Hixon, Chief Rattler. Fred Hixon is secretary of the Chattanooga Moccasins. Wants to know if it is necessary to add lead weights to the outside wingtips of control line models. Not always, Fred. But if you've ever had a model come in on you then you like to keep that outside wing on the outside and weighting it is one of the more popular methods. Anyone wanting to be a

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TOP DOLLAR FOR YOUR TRADE-IN; Deduct 33 1/3% from the price of any new engine for trade-ins in running condition; 30% for other engines. Send check or money order with your old engine. If your trade-in is like new, write for details on our special offer. Send 10c for our amazing used engine listing. Fast Engine Exchange, 1209 Rogers Ave. S.E. Warren, Ohio.

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PHOTOGRAPHS

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MISCELLANEOUS

SPECIAL RUBBER STAMP. Name and address $1.00. John Chester, 69-A East Norwich Road, Oyster Bay, N. Y.

PERSONALIZED 3-color name plate Decals. Send $1.00 for 50 printed with your name only. Name, address, city, and state $1.50. Have your name on your models, tools, books, bicycles, sporting or camping equipment. Hundreds of other uses. Sample FREE. George Person 10211 San Anselmo Ave., South Gate, Calif.

Moccasin (pardon us, while we shiver slightly) can reach F.H. at 1411 Chamberlain Ave.

Scientific Discussion. Comes now a paper entitled "Watch the Wires" by Burnoudt Gloplug. We spied this in the "Flypaper" publication of Bucks County Federation of Model Airplane Clubs (Albert E. Abrams, Jr., editor). It's so crazy it reminds us of that new sports car with the transparent top. This top is a plastic sandwich through which you can pump colored oil, giving you any color top desired. Get the picture, man? So there's this big accident. Car overturns, top is smashed, bodies all about. Passersby rush over; one asks another: "Are they dead?"

"No, not dead, just dyed."

And so Back to Bucks County . . .

"We shall make our topic this month *The Building And Flying Of A Kit Type Control Line Model.*

"As far as building one is concerned, most of them are so well prefabricated that even an amoeba has constructed one in four hours. Protozoa have done it in 2 hours and regardless of rumors heard among free flight groups, most control line flyers are at least as smart as an amoeba.

"A complete control line model consists of two wires (called strings by civilians) which are connected to two cranks, one called a bellcrank and the other just a *%!#&%! crank. A few die-cut parts which fall together around the bellcrank when the kit box is opened make up the model.

"Anyone with one head can fly them. If you have two heads I suggest that you try singing duets. Most of them are flown in round circles. Mr. O. I. Sawuwhip of the B-Line Research Lab, has developed a system consisting of rubber lines for flying in square circles.

"Should you be interested enough, we will gladly answer all questions concerning the more complex phases of control line flying, such as: which line to pull, how to tell up from down, etc."

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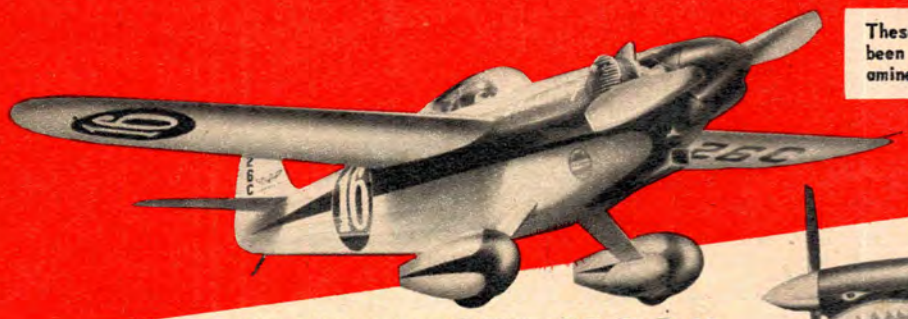

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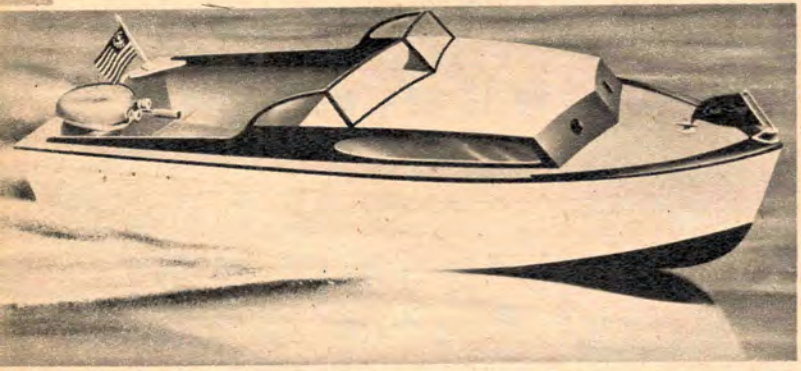

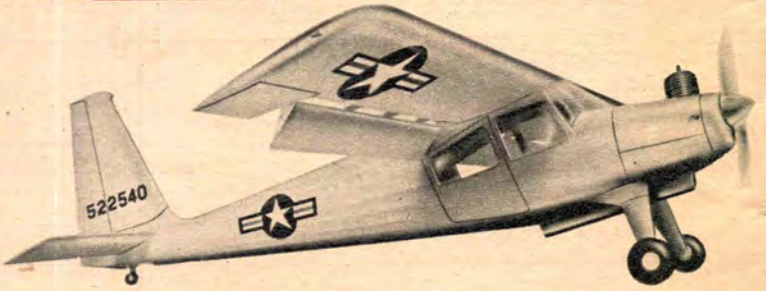

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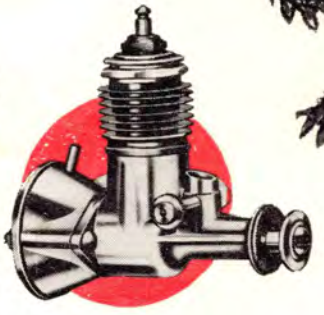

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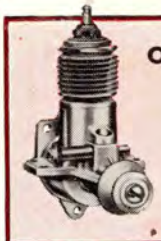

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